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STUDIES in INTELLIGENCE

OB NO. 28-03921A

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TOTAL DOCS HEREIN 1



DOC	<u>1</u>	REV DATE	<u>7 APR 1960</u>	B	
ORIG CCMP	<u>11</u>	OPI	<u>11</u>	TYPE	<u>3a</u>
ORIG CLASS	<u>S</u>	PAGES	<u>109</u>	REV CLASS	<u>C</u>
JUST	<u>22</u>	NEXT REV	<u>2010</u>	AUTH	HR 70-2

VOL. 2 NO. 2
CENTRAL INTELLIGENCE AGENCY
OFFICE OF TRAINING
SPRING 1958

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Approved For Release 2004/12/17 : CIA-RDP78-03921A000300200001-2

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Approved For Release 2004/12/17 : CIA-RDP78-03921A000300200001-2

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This description of how an electronic computer war-games the strategic air battle is the second of a series illustrating advanced methods in air targeting.

DEVELOPMENTS IN AIR TARGETING: THE AIR BATTLE MODEL

Robert H. Adams

In pursuit of its basic objective, the assessment of enemy strengths as targets for US air action, air targeting is developing a series of mechanized analytical techniques as an aid to its intelligence production. The Military Resources Model, described in the Winter 1958 issue of *Studies in Intelligence*, is intended to provide estimates of capabilities to build up or mobilize military resources for war or to recuperate from attack. The Air Battle Model, described here, will provide estimates of capabilities to carry out war plans in the face of opposing offensive and defensive air operations.

This Model provides a high-speed electronic computer simulation of the effects of an air war on both sides, portraying both air and ground support operations. It is dynamic, reflecting the interaction of forces over very short periods of time to represent a constantly changing situation. It is automatic for whatever length of time real-life operations can be pre-planned. It provides a chronological history of the war, reflecting in detail the momentary net capability of each side as the war progresses. In effect, it provides a measurement of the degree to which offensive and defensive plans can be implemented or disrupted.

In making use of this war game mechanism, intelligence may seem to be getting into the determination of strategy. Lieutenant General John A. Samford noted this problem when he wrote in the Fall 1957 issues of *Studies*,¹ "The extent to which intelligence should contribute to this process [of war

¹"The Intelligence Necessary to the Formulation of a Sound Strategy," *Studies in Intelligence*, Vol. 1, No. 4.

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gaming] may be disputable, but it appears certain that the intelligence necessary to a strategy will be better if an advanced war gaming process of some sort is kept closely in mind during all the processes of intelligence preparation." The Air Battle Model is designed to achieve precisely this purpose.

The Purpose of the Air Battle Model

The Air Battle Model was initially designed for analysis of what was called the BRAVO (or "Blunting") Objective. At one time the BRAVO Objective was "to destroy the military, logistic and control strengths of the Soviet Bloc that enable the enemy to deliver air weapons against friendly forces and installations and to resist penetration of his airspace." Over the past few years, significant changes in the philosophy of the BRAVO Objective have occurred. Two of the current purposes of warfare are now listed as: (1) to prevent unacceptable launchings of Soviet atomic weapons against the US and its allies, and (2) to neutralize or destroy the general threat of Soviet air action against allied Air Forces. The current basic strategic concept holds that in event of war we must (1) immediately stop atomic attacks against the United States, our allies, and our military forces abroad; (2) immediately disorganize and disrupt the enemy air defense system; (3) stop surface force attacks against our friends and our sea lines of communication, and then (4) calculate our relative net position and determine what remaining enemy strengths require destruction or denial in order to bring the war to a conclusion on our terms.

Old definitions of the BRAVO Objective called for intelligence estimates of the physical damage done to enemy resources by our air action, without much regard to the time factor or precise measurements of his immediate operational capabilities. Such estimates might say, for example, that attack on a certain target system is expected to destroy 80 percent of enemy bomber aircraft, 40 percent of his fighter aircraft, 90 percent of his bomber bases, 60 percent of his aviation fuel, and so on.

However, if the aim is to put an immediate stop to his atomic attacks, intelligence must measure the degree to which they are in fact stopped by our countering action. We need to know how many fewer weapons he delivers or sorties he flies by reason of our counteraction than he would have without it. An

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estimate that attack on a system of targets would destroy all enemy nuclear storage sites, bomber bases, bombers, missile launching sites, and missiles *without an indication of the timing of the attack relative to enemy use of these resources* provides no indication of whether the enemy delivered none or 100 percent of his nuclear weapons. Determining the degree to which enemy operational capabilities were affected by destruction of his resources requires consideration of where and when this destruction occurred. And this in turn requires consideration of our attack capabilities in order to estimate where and when we could effect such destruction.

If our recommendations for US actions are to be "consistent with the values of the US national strength involved,"² we must determine what our strength will be at the time it is to be used, and we must consider attrition to our own forces from enemy attacks and defensive action. Further we must state this strength in terms of actual ability to deliver attacks under the operational limitations of weapons and aircraft availability, launching requirements, and navigational and bombing accuracies. Is it feasible for us to deliver a certain yield to a certain place in time to interfere with enemy attacks being launched?

Is the objective to stop enemy *delivery* of weapons rather than to stop launchings? If so, then the effects of our air defenses on launched enemy weapons must be determined, and intelligence should measure separately the attrition the enemy suffers at the hands of our defensive and offensive operations. We shall need to stop further weapons delivery after large numbers are airborne and even after large numbers may have been delivered, and this objective involves both our defensive and our offensive forces. Preventing delivery of enemy air weapons and preventing his resistance to our penetration of his airspace blend together; we cannot accomplish one without to some extent accomplishing the other. And all must be accomplished in the relatively short decisive phase in which overall air superiority will be attained or lost.

The targets of air attack can no longer be determined by static analyses of the effects of an assumed successful attack. Most of the key questions in current planning require analysis

² Lt. Gen. John A. Samford, *op. cit.*

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of what happens during the period in which the attack is being carried out. The questions almost invariably involve measurement of the degree to which the attack can be successfully carried through. It is imperative that we have methods for providing measurements appropriate to such questions. The Air Battle Model provides an initial methodology for this purpose.

The Air Battle Model supplies measurements of specific capabilities and the extent to which such capabilities can be realized. Capabilities must be made specific to be analyzed. The statement of a capability to attack must specify with what kind of weapons, with what kind of success against air defenses, with what weapon delivery accuracy, with what scale of attack, with what degree of warning to the other side, and with what probability of retaliatory damage to the attacking side. This is to say that capabilities must be examined in terms of their individual components, and expressed as plans to use available resources in specific ways.

The basic Objective therefore requires an intelligence analysis of target systems with the following characteristics:

1. It must be two-sided, and short-term effects of one side's operations on the capabilities of the other side must be taken into account as soon as they occur.
2. It must be dynamic; the constantly changing short-term net capabilities of both sides must be continuously estimated and recorded, giving a chronological history of the war.
3. It must examine specific plans for use of resources in order to measure the degree to which specific capabilities can be actualized.
4. It must interrelate offensive and defensive capabilities of both sides.

Such an analysis of the air battle also meets the need generated by many particular problems in strategic and tactical planning. Over the past several years there has been an ever increasing demand for estimates of the effects of attack on target systems in order to plan missile and manned bomber mixes and deployments, base hardening and aircraft dispersal or evacuation policies, weapons stockpile configurations, the use of decoys, and other penetration plans to minimize attrition.

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On these and many other questions alternative decisions are weighed against each other in terms of their effects on the air battle.

The planner wants to know: If I make this decision rather than that one, what difference in effects can I expect in case of war? Further, although I am considering this course of action to obtain a specific effect in a specific area, I cannot clearly see just what other areas will be affected or to what extent they will be affected. What other fields are affected by my decision? In addition, I need to know how confident I can be in the estimates of effects on which I base my decision, and this confidence must be estimated from at least two points of view. First, since chance and real-world uncertainties would result in differing effects each time I tested my decision, what is the degree of probability of a particular effect? Secondly, since a variety of conditions may obtain in a real-war test of my decision, I need estimates of its effects under a variety of conditions.

These questions carry a number of implications for the intelligence analysis designed to answer them. First, there is an implied need for a "big picture" analysis. The planner needs to see clearly where the decision under study fits into overall plans. The analysis should assist him in determining both pre- and post-hostility effects of his decision. Suppose, for instance, that our planner is concerned with the possibility of pulling back some overseas tactical forces into the United States to improve their mobility for limited wars. A typical pre-hostility problem would be what effect, if any, this redeployment would have on the role of overseas bases for wartime deployment of both tactical and strategic forces. What load changes on them may be expected? A post-hostility problem would be whether the TAC withdrawal would allow a significant change in Soviet concentration of effort on SAC pre-strike deployment bases. If the planner can review his problem in the light of an overall analysis of the key points of most of our war plans, then his decision is much more likely to be the right one.

The second, and more frequent, need is for comparative results of alternative decisions. The planner needs to be able to estimate effects while holding all facets of the problem con-

stant except those linked with his decision while varying others which might influence the effect of his decision. For example, a decision made for the current time period may be carried over into a future period in which many of the factors bearing on its effects may have changed.

Comparative estimates are required of the effects of a decision as varied by chance factors and estimates of the probability of any one effect. Chance elements are bound to be introduced in bombing errors, navigational errors, mechanical failure of aircraft, misinterpretation of radar scopes, inaccurate interceptor firing passes, and many other unplanned events. These affect the results of attack on a target system. If a certain battle is fought and refought many times, always with the same initial conditions, then on the average there is a most likely outcome of the battle, and on this most likely outcome the planner of the past would base his decision. But if a battle is to be fought just once, it is not enough to know only what the most frequent result in a series of such battles would be. The planner should know what the range of error associated with a certain predicted outcome may be. A plan which has a lower predicted probability of success may also carry a narrower range of possible outcomes, the worst loss being not so bad as that associated with another plan in which the most probable result is more favorable.

To answer the planner's questions, intelligence working with others must provide comparative estimates under many different conditions. Certain uncontrolled factors which must be assumed may have a significant influence on the effects of war. For example, the time of day of the initiation of hostilities, the time of year, the weather, and many conditions which the enemy controls will require assumptions for analysis of a war situation. The planner should know whether or not such assumptions influence the results of his decision, and if so, to what extent. Although some conditions are more likely to obtain than others, in many cases it is extremely difficult to estimate the probabilities of occurrence. Comparative estimates of effects under alternative conditions must be made.

There is always uncertainty in estimates of the precise types, quantities, and characteristics of resources available to the enemy. In determining the effects of his use of these re-

sources, it is not enough to take the "most probable" estimate of what they are. The variation in effects with the differing sets of resources of varying probability must be determined. For example, the degree of accomplishment of the BRAVO Objective will certainly be influenced in 1960 by whether or not the Soviets have an operational ICBM. They may have none; they may have 100. It is necessary for us to take both extreme cases into account in estimating the effects of war in 1960.

One other requirement for the air battle analysis involves the operation of chance on enemy plans. Enemy plans do not represent the threat he presents until they have been degraded by chance operational constraints. Chance (or nature) is the first antagonist of war plans. As previously noted, chance enters into air operations in many ways — bombing errors, navigational errors, equipment malfunctions, etc. As a result, the threat presented by a series of plans will always amount to something less (or at least different) than the plans themselves. There is a need, therefore, for one-sided gaming of planned use of resources in order to estimate an actual capability to use these resources without interference from enemy action. This degraded threat may then be used as a base on which a two-sided game can measure the effectiveness of counteraction in reducing the threat.

Description of the Air Battle Model

The Air Battle Model programs a high-speed computing machine to simulate about three days of a two-sided strategic air war. It is completely mechanized in that, after the inputs are fed into it, it works through the air war in great detail, writing up its history as it goes along.

If you think of the Model as a kind of black box which will do our war gaming for us, the inputs fed into it may be viewed as the terms of reference of a problem. These terms of reference must describe what war resources are available to each side, what courses of action each will attempt, and the characteristics and conditions determining the results of interaction. Two different kinds of data are fed in for each problem to be gamed, one representing the quantities, location and status of the offensive and defensive forces of both sides, and the other roughly the strategies (intentions and plans) of both.

The Air Battle Model

For each side the inputs include offensive base information, defense installation characteristics, aircraft lists, target lists, and finally, plans for offensive sorties. In addition, the black box itself has a set of parameters, a constant part of the Model, which define the effectiveness of the defense against bombers, register the aircraft characteristics and support requirements, calculate the weapon effects against resources, and determine the way in which the plans are to be used.

The Model looks at the air battle at certain specified time periods, perhaps every fifteen minutes of real time. It takes a look at the situation at the beginning of the first fifteen minutes and asks what would happen during the next fifteen minutes. It starts looking at one side, say the US side. It looks at all the information characterizing it and computes what would happen in the next fifteen minutes. It then looks at all the information characterizing the SU side and computes what would happen in the same fifteen minute period. It now asks whether the game time has ended. If not, it raises time one fifteen-minute period and starts the cycle over again. This cycle continues until a time predetermined as the last period of interest. The two-sided interaction is simulated in the cyclical process by feeding data on the SU defense installations and targets into the US side and data on the US defense installations and targets into the SU side.

In view of limitations on the amount of rapid-access memory available in a high-speed computer, the Air Battle Model was developed with five major parts — five major operations which together make up the substance of the air battle. Each of these parts is a separate routine on the computer. The computer can therefore use its full memory on each, and can retain all the information necessary to carry out the operations of one particular routine. At the end of a routine, the data stored in the high-speed memory is dumped onto a magnetic tape, and the new data needed for the next routine is "read" into the memory from the tape. Since the Model is two-sided, the routines must all be carried out for both sides in the battle. When all five routines have been carried out for one side, the machine switches over and carries out the same five for the other side for the same time period. The five routines by which the machine simulates the air battle are:

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(1) cell handling, (2) attrition, (3) cell forming, (4) targeting, and (5) damage assessment.

A "cell" is a homogenous group of aircraft in flight, belonging to the same type, taking off together, flying at the same speed, carrying the same weapons and the same amount of fuel, having the same fuel consumption rate, etc., and having the same general destination. Planes on the ground at a base, on the other hand, are treated as individuals for the sake of flexibility in simulating ground support operations.

Routine 1 — Cell Handling

The Cell Handling Routine is concerned with in-flight plans given each cell. The in-flight plan tells the machine what route a group of planes is to take, what the choice of flight altitude and speed is to be, and what the planes are to do along that route. It gives the coordinates of a point along the proposed cell route and specifies the operation (*subroutine* in Model terminology) to be executed at that point. There are twelve of these subroutines simulating aircraft operations, any or all of which may be used. They are:

1. *The land-at-a-base subroutine.* This provides for landing the cell at a specific base, if the base is operational. If it is not operational, there are two alternative in-flight plans giving the choice between flying on to another base or landing in an area.
2. *The land-in-an-area subroutine.* This provides for landing the cell at the best equipped base in an area of specified size.
3. *The splash subroutine.* This means either a crash landing or that all the aircraft in a cell have been destroyed so that the cell itself no longer exists.
4. *The refuel subroutine.* This specifies the procedures, waiting time, and further instructions to be followed when either a bomber cell or a tanker cell reaches an aerial refueling point.
5. *The dogleg subroutine.* This provides for a change in direction or mode of operation of a cell. The latter may be a change in altitude or speed, for example.
6. *The rendezvous subroutine.* This allows, where feasible, simultaneous penetration of enemy defenses by several cells.

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7. *The target assignment subroutine.* This sets up a procedure to simulate specific selection of a target for each bomber.
8. *The branchpoint subroutine.* This permits several cells to use the same in-flight plan up to a branch point and then to separate, each taking one of two exit routes according to a prearranged system.
9. *The target point subroutine.* This simulates bomb drop at bomb release line, recording the number of bombs dropped in a target area.
10. *The intelligence communication point subroutine.* This simulates communication of intelligence to friendly forces concerning whether or not a target has been bombed and concerning potential targets.
11. *The orbiting for evacuation subroutine.* This provides for keeping a cell of planes which have been evacuated from a base under threat of enemy attack in an orbit pattern in the vicinity of the base. The original take-off to evacuate a base is automatic if evacuation is desired.
12. *The decoy release subroutine.* This provides that at some specified point aircraft in a cell may release decoys.

Routine 2 — Attrition

The attrition routine is concerned with the loss of bombers to local defenses (surface-to-air missiles) and area defenses (fighter interceptors), taking into account the effects of electronic countermeasures (ECM) and of radar. In beginning the attrition routine the machine makes a check to find a list of bomber cells and defense sites close enough to each other so that there is a chance of interaction between them. Then for each possible interaction it determines whether defensive plans and resources available would result in an offensive-defensive duel. If a duel would result, the probability of bomber and fighter kills is determined. The number of planes shot down is then calculated on the basis of the kill probabilities.

In interactions with local defense missiles, the machine takes into account the number of missiles directed against each plane and the ECM characteristics of the plane in computing aircraft kill probabilities. Then it determines how many planes have been shot down by matching random numbers for each plane against the kill probability (the Monte Carlo method),

and revises the cell records accordingly. If a plane is shot down while carrying a bomb and there is a probability that the bomb will go off, the computer uses the Monte Carlo method again to determine whether the bomb explodes and computes a chance location for the bomb to fall in.

The term area defense is used to describe the operation of fighter aircraft assisted by radar. Three operating modes are distinguished for each radar type: search, broadcast control, and close control. In search, the defensive aircraft operate with no guidance from the radar other than the information that offensive aircraft are in the area. At intermediate ranges, broadcast control is furnished the fighters. This means that they are given the position of the offensive aircraft but are not vectored to their targets. At close ranges the fighters may be given close control, that is vectored to their targets. These three modes of operation are introduced explicitly in the Model as three levels of probability of killing a bomber.

The close control capacity of a radar is given as a specific number of close control channels and a specific number of fighters that can be controlled by each channel. So far as possible, each fighter cell is given a channel of close control. However, if there are not enough close control channels to go around, the superior fighters are given the available control channels and the rest are sent up on broadcast control. On the basis of the amount of control, the type of fighters and bombers, the ratio of fighters to bombers, and the amount and type of ECM (which serves to reduce the control) present, the computer makes a Monte Carlo determination of how many bombers and fighters are shot down. If there is a chance that the weapon aboard a shot-down bomber may explode, the Monte Carlo method is applied to determine whether there is actually a ground zero and what its location will be.

Routine 3 — Cell Forming

The cell forming routine incorporates the planner's decisions as to how operations are to get under way. These decisions are put into the computer in the form of initiating plans, instructions to the machine to form cells at some time with some number of planes of a particular type carrying specified weapons. Instead of asking a particular number of planes from a particular base to go to some particular place at a particular time,

the input chooses an "initiating point" at which planes for a cell are to gather. The initiating point may be any convenient point on the route to the cell's destination. The initiating plan specifies a time interval, rather than a particular time, at which the cell is to be formed, and specifies a maximum and minimum, rather than a particular number, of planes for the cell. Planes are to be drawn from any base within a given radius rather than from a specific base, with the limitation that they must be drawn from a particular unit — roughly a wing.

If there are enough planes available and if it is time for a plane or cell to take off, the machine automatically writes what is called an implementing plan to get the planes to the initiating point. Each time a plane becomes available, the implementing plan sends it off to the initiating point. If now is not the time for the first plane to take off but the plan is feasible, the machine waits and tries it again in the next time period. Sooner or later, when conditions are right and the time comes for the first plane to take off, the implementing plan will be written and the cell formed.

Another aspect of the cell forming routine is concerned with aircraft maintenance on the bases. The computer, as part of its record-keeping function, maintains what is called a base list. The base list gives for each base the number of runways, the maximum length of usable runway, the amount of above-ground fuel, the amount of below-ground fuel, the number of hydrants, the number of maintenance slots available, and the number of different types of weapons in the weapons stockpile. Treating each plane on an individual basis, the machine determines whether it needs maintenance, bombs, or fuel, and furnishes them if they are available. It calculates the time needed to perform these operations which keep the aircraft out of action. Airbase inventories of fuel and bombs are reduced accordingly.

Routine 4 — Targeting

The major product of the targeting routine is a list of ground zeros for each weapon reaching bomb release line. These ground zeros are obtained by taking into account the radius of probable error for each of the types of aircraft and the mode of delivery for each weapon reaching target point. By the Monte

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Carlo method a precise point of burst is obtained for each weapon. The targeting routine also takes into account the possibility of a gross navigational error. A determination is made by the Monte Carlo method as to whether there has been such an error, and if so a random target is selected for the bomb release point.

Routine 5 — Damage

The damage routine calculates the effect of bombing on military installations. It considers nuclear weapon effects in two categories, blast and radioactive fallout. Different blast effects are used for air burst and ground burst. The effect of fallout is to make installations inoperative while it is above a certain tolerance level. Blast damage is calculated for each installation close enough to a ground zero to be affected. Each type of air defense installation has an appropriate kill radius measured from the ground zero. If the installation is within the kill radius it is destroyed.

Offensive bomber bases are treated in more detail. Each of them has a geometrical array of points which represent existing runways, parkways for planes, maintenance facilities, above-ground fuel storage, hydrants, and bomb storage sites. When a weapon explodes in the vicinity of a bomber base, the amount of damage to the various facilities and to the planes which may be located at those facilities is determined on the basis of the appropriate kill radius, and the status of the base is revised accordingly.

Application of the Air Battle Model to Air Targeting

Assuming that a war situation has been set up as needed for model runs, how would the runs be made, what products would result, and how would the outputs be used? How can resulting estimates be applied to targeting problems? We know that war gaming will only provide an idea of how things might go in a war under certain assumed conditions rather than provide an estimate of how the war will actually go. Results will be only comparative among themselves — that is, we will be able to say that one type of attack is probably better than a second under certain conditions, whereas the second may have better effects under different conditions.

The results will not be indicative of how war will go for at least two reasons: first, because we know that our inputs are of

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tenuous validity, and second, because certain result-determining conditions must be assumed and will never be explicitly analyzable. This is to say that the detailed results of single runs will rarely be meaningful; results can only be significant after consistent occurrence in many runs. For example, loss of all facilities at Thule Air Force Base during the first few hours of war becomes useful information only when it can be shown that it occurs most of the time under chance variations and under a variety of Soviet strike plans.

Conversely, aggregate measurements of effects will be of greatest significance for any one set of inputs. The status, eight hours after initiation of US operations, of the 25 key Soviet staging bases for attack on the US will be more meaningful than the status of the Anadyr airfield. Because aggregate measurements will be of such significance, the Air Battle Model has been programmed to provide certain of them for each time period. First, aircraft counters for each time period record the number of aircraft killed on base, the number killed by abort, the number killed by local defenses, the number killed by area defenses, the total number killed in flight, and the number arriving over enemy territory. Second, installation counters record the number of bomber bases killed (inoperative because of damage), the number of surface-to-air missile sites killed, the number of radars killed, the number of bomber bases out from radiation, and the number of radars out from radiation. Third, a counter of ground zeros records the number of offensive weapons exploding each time period. Fourth, new cell counters record the number of cells and the number of bomber and tanker aircraft taking off each time period.

A typical use of these counts might be to indicate the effect of different degrees of warning, different intervals of time between the start of aggression by one side and the awareness of it by the other side. This problem is set up with the resources and plans of both sides fixed, leaving as the only variable the interval between the times the two sides start to implement their plans. Playing through the problem several times with the warning time set at different values will show the effect of warning on the number of aircraft killed, on the number of cells formed, on the status of installations, and on the number of weapons delivered by each side.

These aggregate counts provide indications of how the war is going and to what extent the air battle objective is accomplished in each period. Much more detailed information is needed, however, for analysis of why things are going as they are. For this purpose other measurements are now programmed for the output of Air Battle Model runs. Whenever a cell reaches initiating point or performs an in-flight plan, information on the nature of the cell and what it is doing is recorded. A ground zero list by time period notes the unit number, cell number, bomb size, and location of each ground zero during the course of the game. Various presentations of these data would permit large-scale analysis of the air battle in any significant area or group of areas of the northern hemisphere. It would show by area and by time, for example, the level and type of air activity, the build-up of enemy aircraft within the area, the attrition of incoming enemy aircraft by defenses in the area, the weapons delivered by enemy bombing and the explosion of weapons shot down, the effects of enemy flights and bombing on the planned operational schedule of friendly forces in the area, and the effects of enemy bombing on offensive and defensive facilities.

One of the major problems of the Air Battle Model lies in the vast quantities of data it generates concerning the history of a war. Selection and presentation of only a small portion of possible outputs is required for practical use. Careful review of many study problems over a long period of time will be required to provide assurance that most of the pertinent available measurements are saved and recorded in usable form. Manual review of even those outputs described above would be too time-consuming for practical use, and mechanized presentation procedures are now under development. The comparison of the outputs of different runs is also expected to be time-consuming. A methodology for such comparisons, aimed towards mechanization, is now under development. Similarly, the results of many runs will need aggregation for purposes of hand analysis, since the computer can grind out results (e.g., ground zero patterns) much more rapidly than they can be reviewed.

With the preceding background in mind, let us examine the kind of Model runs that will be needed. Remember that the basic purpose will be to estimate the degree of accomplishment

of the air battle objective achieved by our selection of targets and target systems, and the major subpurpose to estimate the influence of a planning decision or a group of planning decisions on the outcome of a battle for air supremacy and survival. And bear particularly in mind that our confidence is high only in the *comparative* results of war gaming.

There are four broad types of Model runs required for these purposes. First, one-sided runs with all input data constant will indicate the operational limitations on each side's plans and segregate the offensive and defensive problems faced by each side. These runs will show the unopposed capabilities for each side, providing a basis for estimating in later runs the extent to which the other side can interfere with these capabilities. Second, one-sided and two-sided runs with all input data constant will determine the chance variations both in the unopposed execution of plans and in the interaction of forces of the two sides. Third, runs with variations in one or more input parameters will determine the sensitivity of results to a range of values for assumptions and low-confidence estimates. Fourth, runs with basically different sets of inputs will compare significantly different strategies and force availabilities.

In refinement of the first type of run, a great deal can be learned about an air battle through a series of runs of one problem with fixed inputs except for the use by one side or the other of its offensive or defensive capabilities, or both. There are seven meaningful combinations of these conditions. In the first two cases only the offensive capabilities of one side are represented, with no defense or offense by the other. Such runs measure the maximum effectiveness of that side's given operational plans. Case three is a full scale two-sided run, in which both offensive and defensive capabilities of both sides interact. By comparison with cases one and two it measures the extent to which the offense-defense and defense-offense interaction reduces the maximum effectiveness of each side's plans. In the fourth and fifth cases the offense of one side is pitted only against the defense of the other. These measure the maximum effectiveness of each side in the absence of offensive effort by the other, and comparison with the full scale two-sided run (case three) gives a measure of the extent to which the offense of one side reduces the effectiveness of the other's offense. In

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cases six and seven one side only does not defend; the results may be compared with case three to see to what extent the defense reduces the effectiveness of an attacker.

Before we can compare the influence of different decisions on the outcome of an air battle, we need runs of the second broad type to determine the influence of chance on the outcome for each decision. We know that a specific attack against a specific target system may have a wide variety of possible effects, depending upon precisely which aircraft get through to which targets and when, and which aircraft bomb accurately and which inaccurately or with gross error. Information will be required as to the effect of such chance distributions on many of the basic outputs. Since the Air Battle Model employs Monte Carlo techniques to simulate chance events, a series of runs should be made on each set of inputs with different sequences of random numbers to obtain different chance results. All other conditions should be held constant. Statistical analyses of the distribution of the chance variation in results will determine the spread which may be expected with one set of input conditions and indicate how much confidence one can have in a particular outcome.

The third type of run analyzes problems with variable basic conditions. The effects of any particular planning decision must be reviewed under varying basic assumptions and conditions. These analyses will generally not require revision of basic terms of reference or input sets, but will be effected by changing one parameter value at a time; values higher and lower than "best estimate" values will be used for the parameter under study. These parameter variation runs will show the effect on the outcome of the battle of variations in the speed of bombers, effectiveness of use of radar and ECM, bombing accuracies, time of year and time of day of starting hostilities, reaction time after warning, weapon yields, aircraft evacuation policy for bases under attack, personnel evacuation policy for bases under radiation hazards, and many other factors.

Study of parameter variation effects combined with analysis of the effects of chance will require many runs. Fortunately, it is possible with the Air Battle Model to rerun problems with the same random number sequences for the simulated chance events. It is possible, therefore, after determining which sequences of random numbers yield for example very lucky,

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medium and very unlucky results on a problem, to use these same sequences again to obtain the lucky, medium, and unlucky results of a parameter variation for the same problem.

The results of parameter variation runs, incidentally, offer a tremendous feedback for establishment of intelligence collection and analysis requirements. They indicate the sensitive conditions and inputs on which estimating capabilities should be concentrated. If ECM effectiveness has a significant influence on the effects of the air battle, then priority efforts should probably be devoted to the study of enemy ECM capabilities. Conversely, if a plus or minus 30 percent variation in the speed of bombers has little or no influence on the outcome of the air battle, then attempts to refine estimates of bomber speeds should be given lower priority. Similarly, the runs indicate the sensitive operational considerations which are the key terms of reference in planning estimates.

The fourth type of runs will be required for analysis of "big picture" problems. These require basically different sets of inputs. Variant data reflecting capabilities at short, intermediate, and long range must be used. Several different enemy courses of action should be examined for each time period, and at least one countering US course of action for each. Several US target systems and target system priorities coupled with differing US strategies based on varying amounts of warning should also be studied. Some of the other plan revision factors important in this study are weapon constraints (such as non-use of surface-burst thermonuclear weapons in certain areas of the world), US weapon deployment at initiation of hostilities (in the Zone of the Interior only, or also overseas), delivery force sizes for both US and SU, delivery force structures (including missile-bomber mixes), and Soviet offensive aircraft deployment (at peacetime bases in one case and also at advance bases in another). The formulation of input sets for such studies will take a long time, and our ability to perform these studies in the future will depend upon the programmed development of such input sets.

The Air Battle Model is designed to evaluate the operational and logistic factors bearing on the identification and analysis of a target system for our strike forces. The specification of such a target system, with full assurance that we have the

right targets and the right weapons on them at the right time under varying operational conditions, exceeds the capabilities of the best analysts and planners. Human minds cannot keep the thousands of facts and relationships under analytical control and see them as they affect the whole problem. For these reasons we have been pressing the development of this mechanized analytical technique. The Air Battle Model appears to offer the best solution now available to some of the important problems air targeting must solve.

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Collection practices are critically reviewed from the standpoint of the middleman by a State Department expert.

SOME VIEWS ON THE THEORY AND PRACTICE OF INTELLIGENCE COLLECTION

Stanley E. Smigel

Intelligence collection as here discussed is a broad service and support activity. Its principal service, of course, is procurement of material for the intelligence analyst-producer's mill. To meet this responsibility, intelligence collection seeks out information on countless facets of subjects political, economic, scientific, cultural and military. In form this information may be press clippings, books, reports, maps, photos, samples of grain or oil, radios or machine tools, identity documents, or reproductions of industrial markings.

This article will deal principally with that part of the intelligence collection activity which is done by the headquarters organization. Obviously, one key responsibility of the headquarters unit is the organization, maintenance, coordination and direction of the actual collection and reporting operation in the field. Other important service and support activities are performed and these will be pointed out. Because the precise responsibilities and activities of the various headquarters units vary, we shall discuss instead the more important functions of a typical headquarters collection specialist. The emphasis is placed very largely on overt activities; little will be said of clandestine collection.

The Job of the Headquarters Collection Specialist

Let's look first at the comparatively well known and obvious services and practices that may be expected of the good collection specialist. He is, of course, expert on the sources which might be used in filling a given requirement. His experience in handling many requirements also enables him to use the most suitable collection form. On occasion, for example, an official-informal letter to the first secretary of the political

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section of a mission may be more productive than a routine instruction which is technically directed to the ambassador. The language and tone of an instruction, important for comprehension and sympathetic reception in the field, can usually be improved by a competent collection specialist. By checking with other analyst-producers (or agencies) in Washington who have an interest in the country or subject, he can often make significant additions to the original request, to the advantage of all concerned. Other generally accepted activities of the collection specialist include securing the necessary clearances for an outgoing instruction (providing justification where necessary), expediting transmission to the field, keeping records of requests and replies, etc.

There are other services and practices of the collection specialist which are less well known and are not obvious. For example, he does not send to the field for collection every requirement he receives.¹ The requirement must be appropriate for his collection agents. A foreign service officer is not ordinarily asked to do covert collection, nor is he asked to handle military subjects when military attaches are part of the mission. The collection specialist doesn't, moreover, transmit a request for assessment of reported flood damage in an outlying province when the political pot in the capital is boiling and all hell may break loose at any moment. The request for flood damage reports may come from an *economic* analyst-producer interested in what harm has been done to food crops or to important transportation links. The request, valid though it may be, must await its time. The political scene demands priority. Transmission of the economic request when received would very likely irritate or frustrate the field unit.

But not all requirements framed by analyst-producers are valid. Occasionally a collection request will ask for information that has already been reported by the field and is resting within easy reach of the requestor. If such a request slips through the collection specialist's screening mechanism the field reaction is always prompt and generally acidic. And the

¹ A Bureau of the Budget survey (circa 1950) disclosed that 1 in 6 requests processed through the Department's Intelligence Bureau was either rejected or altered in major fashion to suit circumstances or capabilities in the field. It gave warm approval to this activity.

taste lingers on for a long while. The requestor, of course, feels like a worm resting under a flat rock which has suddenly been removed. First blush reaction is that if the post never reports again, it is only the just dessert earned by the requestor. But what of the dozens of others who are also interested in information from this post? Their interests cannot be ignored, should be promoted, and, where necessary, must be protected.

A good collection specialist, although the servant of Washington consumers, must be alert to circumstances in the field. In the overall picture, he does his Washington consumers a disservice if he is not. When a post is substantially reduced in strength by illness or loss of personnel, normally valid requirements become marginal or submarginal. A change from a friendly to a hostile government makes the task of a foreign service post immeasurably more difficult. The most commonplace answers may be found only after much digging and perseverance. Requirements must, therefore, be screened carefully. Other possible collection avenues must be scouted. Solid "justifications" must stand behind all outgoing requirements. Collectors and analysts alike should be on the alert to provide such a post with information that appears outside of the country concerned but is not readily available inside. This practice is not only a courtesy but by keeping the field unit informed maximizes its collection potential.

A difficult and not uncommon problem for collection specialists can be illustrated by a hypothetical case. The foreign service post in Lower Routinia cables Washington:

Rumors are rife that members of the armed forces, incensed that pay-increases and other concessions have not been granted, are threatening to overthrow the central government. Air Marshal Schwarzbart is reported leading this group. The Minister of Defense has broadcast a statement denouncing rumors that are being spread by "traitorous, self-seeking elements" and assuring the population that any attempt against the government is unthinkable, but that if it comes it will be "smashed by the ever-vigilant, loyal armed forces." The police guard around the Capitol buildings has been materially strengthened.

Within hours after receipt of this cable the collection specialist receives a requirement, for "immediate" transmission to the field, as follows: 1) What important military figures are supporting Marshal Schwarzbart? 2) What is the position of the Navy? The Army? Are they supporting the Air Force? To what extent? 3) Is the incipient revolt primarily one by the young officers group? 4) Are there any influential civilians or civilian groups supporting the Air Force group? 5) Any other pertinent information on scope, timing, probabilities and personalities is desired.

Basically there is nothing wrong with this requirement. It represents information in which the requestor has legitimate interest. But the timing is all wrong. The requestor's interest—even excitement—has been aroused by a report from the field. That the field is reporting on the subject and that they reported by cable indicates their awareness of Washington interests and their recognition of the importance of the subject. Had the field possessed any additional significant information this would undoubtedly have been included in the cable. The *only* reasonable assumption is that the field is concentrating every effort to secure and report additional information. Everything on the subject will be reported. To single out certain elements and cable them to the field may a) attach unjustified priority or importance to these elements which in retrospect may be found unjustified, or b) may, as here, stress the obvious and thus not only be superfluous but may be considered by the field unit an unjust reflection on its intelligence.

In the circumstances of our example, overwhelming experience counsels patience and waiting; the boys in the field know what they're doing. If after a reasonable period no further reports are received, the transmission of the requirement would be justified. An *immediate* instruction to the field would, however, be justified if the field report indicated a) ignorance of significant information available to Washington from other sources or b) significant misunderstanding or erroneous assessment.

The foregoing covers the work of the collection specialist on what are commonly termed "spot" or *ad hoc* requirements. A less dramatic but important collection function is the compilation, and constant revision, of the standing or basic intelligence instructions. These are the manuals, the collection in-

structions, the intelligence plans, the periodic guides, etc.² They tend to be lengthy and encyclopedic in contrast to the generally brief character of the spot instruction. The general inclination in the intelligence community is to turn up one's nose at these pieces. In point of fact, if they did not exist and were not periodically revised there would be a gap which would frequently be keenly felt, for basic or standing instructions play much the same role in the intelligence collection picture that the National Intelligence Survey (NIS) plays in the production scheme. The periodic revision of these basic pieces provides an occasion for the introduction of new concepts as well as the dusting off and refurbishing of the old. More general, less urgent than the *ad hoc* requirement, there is still room in their construction for hard thinking, imagination and the application of perspective on the part of the collector.

Before we proceed to the non-collection duties of the collection specialist, a word of clarification is in order with respect to "requirements officers" and their role. As their name implies, these officers busy themselves primarily with requirements, which are the expressed informational needs of intelligence analyst-producers. By example and exposition, however, we have shown that the collection specialist performs a full-scale requirements function. Requirements officers, therefore, may be collection specialists under another name. More often, however, the functions of a requirements officer do not reach the full scope of those of a collection specialist but are limited to consolidating the requirements of the analyst-producer. The establishment of requirements officers is thus a fractionalization, and frequently a decentralization, of the collection activity.

If the requirements officer is too close organizationally to the analyst-producer, especially in a dependent relationship, there is danger of his becoming a sort of bat-boy for the analyst-producer. This kind of requirements officer frequently has too little concern for the merit, timing, or priority of the requirement he shepherds. Getting a collection request sent to the field may on occasion be even more important than the reply.

² See for example: U.S. Naval Intelligence Manual (ONI 70-1) Nov. 4, 1957; Department of the Army Intelligence Plan (DAIP) Dec. 1957; Army Intelligence Collection Instructions (AR 381-25) March 1956; Foreign Service Manual, Vol. IV, Chapter 900 (Intelligence).

The above collection or requirements activities of the collection specialist occupy somewhat less than half his time. His other duties include two broad categories, liaison and staff work, and a host of other jobs such as: processing clearances and declassifications; arranging briefings and debriefings; conducting intelligence exchanges with representatives of foreign countries; administering evaluation programs of individual reports and overall performances; supervising distribution and reproduction; arranging trips to the field; assisting in assignments to the field; handling funds and fiscal records; procuring special equipment for the field; assisting in orientation and training.

Collection is inseparable from liaison. That is, while not all liaison officers are collection specialists, every collection specialist engages in liaison, some more than others.³ Not infrequently the liaison activity is a formal one recognized and delineated by official regulations. Certain collection responsibilities are invariably included. On other occasions, liaison is carried out not as an official duty but as a logical means to gain the collection objective or further other activities.

The staff work that collection specialists perform (or can perform) includes studies on such topics as:

³ The nature and scope of liaison are indicated by the following quotation taken from a Department of State draft memorandum (Unclassified): "Liaison officers . . . shall deal . . . on matters of interests to their respective agencies, such as the collection and exchange of information (or intelligence), the operating and administrative matters appertaining thereto, and the securing of such reciprocal assistance and services as are customary in general liaison activity. . . . In the performance of their duties, they shall procure for and provide to the Agency with which they maintain liaison appropriate information and assistance when not inconsistent with the obligations and interests of the Department; these services shall be extended as a general practice and in response to specific requests . . . Whenever practicable, business . . . will be conducted through designated liaison offices. Specialized subjects, however, may be handled by those familiar with them or directly concerned in cooperation with officially designated representatives. Moreover, interagency discussions and collaboration on policy and directly related matters by policy and executive officers . . . shall be carried out in such manner and channels as the participants deem advisable. This does not, however, relieve liaison officers of the responsibility of providing all possible assistance and service if called upon in such matters."

The Intelligence Potential of Foreign Service Consular Sections;
Relationships and Coordination among Collection Components in the Field;
The Use and Value of Intelligence Reports to (Selected) End Users;
Annual Evaluation of Foreign Service Reporting from an Intelligence Standpoint;
Emergency Instructions and Procedures Necessary to Put (Department of State, Army, etc.) Intelligence Activities on a War Footing upon Outbreak of Hostilities;
The Intelligence Potential of (Army, Navy, Air) Reserve Officers Residing Abroad; etc.

Some of the implementation of such studies rests logically in the lap of the collection specialist. And as he takes on these broad, responsible support activities, he finds himself doing a general secretariat activity for the intelligence chief and his associates.

The picture we have drawn of the collection specialist's operation is one of an extensive support, staff, and backstopping activity. This is properly so. Although a seeming contradiction, the collection specialist is a generalist, a jack-of-many-trades. This role is a logically derived one. He exists in the first instance because most analyst-producers if left to their own devices would fumble the mechanism of collection. Some would fail to think out their needs, thus falling short on the substantive aspect. Other analyst-producers need to be prodded, else any collection effort for them or from them is apt to be too little, too late. The very resourceful, highly talented analyst-producer can approach the collection specialist in efficiency and results, but it would be poor use of resources to occupy his time in collection except where no substitute were possible.⁴

⁴ As indicated, we do not imply that the collection specialist should do all collection or that the analyst-producer should do none. The analyst-producer who visits a library or the industrial register or discusses an interest with some specialist in another organization is doing a necessary, almost unavoidable, collection job. Assignment of all collection to a collection specialist is no more sound or possible than the assignment of all security responsibilities to a security officer or all administration to an administrative officer.

By handling many different requirements from many analyst-producers, the collection specialist acquires a fund of general information. Because of his many contacts, he can make the imagination and sensitivity of one analyst benefit other analysts. His many contacts, his knowledge of the interests of others, his administrative ties and his essential spirit of service make him a focal point for people asking questions, seeking information or advice. So from the roots of collection and liaison, the activity builds into a broader staff and support function.

The Differences in Collection Organizations

The organizational command structure and the responsibilities of headquarters collection units in the intelligence community vary greatly. The differences are both significant and interesting. At one end of the scale are the military services. All the intelligence collection activities are under the pertinent intelligence chief. A collection instruction to the attaches in the field is drafted in the intelligence collection component, signed by the intelligence chief or a deputy, and proceeds directly to the attache. The attache in turn is directly responsible to his intelligence unit in Washington.

This pattern contrasts sharply with the command and structural relationship in the Department of State. In the Department, the principal collection arm, the Foreign Service, lies outside the intelligence organization. Instructions to the Foreign Service are drafted by the Intelligence Bureau, but, with small exception, these instructions must receive the approval and clearance of other bureaus before transmission. On the other hand, the approval of the Intelligence Bureau, again with small exception, is not required on instructions to the Foreign Service drafted by other bureaus. In contrast to the clear-cut responsibility the service attache has to his headquarters intelligence unit, the foreign service officer has responsibility to the Department as a whole and has indirect responsibility at best to the Intelligence Bureau.

The mission of every military attache and his staff is flatly intelligence, and very clear-cut. For example, the Department of the Air Force Instructions (Intelligence Collection Instructions (ICI) of June 1954, currently being revised) state that the primary function of the air attache is to collect and report

intelligence information. Speaking of this function, the instructions, moreover, admonish that "it is of such overriding importance that it must never be subordinated to representative or administrative duties." The U.S. Naval Intelligence Manual of 4 November 1957, speaking also on the collection and reporting function, instructs naval attaches as follows: "This task is so important that it should never be relegated to secondary consideration in favor of other duties." It would be difficult to issue instructions more precise and more categorical.

The Foreign Service, on the other hand, has no such instructions, for it is a multi-purpose operation. There are many Foreign Service posts (e.g., consulates) where 95% of the effort is devoted to passport and visa work, protection of American interests, seeing to the welfare of American seamen and the like. Intelligence is secondary at best and the small intelligence potential which does exist is largely unexploited. Reporting from these posts covers administrative, fiscal, and consular matters. Even in the political sections of American embassies abroad intelligence reporting must on occasion vie with representation for primary importance.

The military services keep a closer control of their attaches' collection activity than the Department of State does of its collection activities in missions and posts abroad. Military attaches are required to prepare intelligence collection plans and keep them current. Copies and revisions *must* be sent to Washington. These plans include information on the categories of sources and contacts, their value and extent of use, deterrents to collection, a travel plan, emergency plans, etc. The Foreign Service has no comparable collection instruction and obligation. A good portion of this kind of information, however, is reported piece-meal.

The undiluted intelligence nature of military attaches and the directness of the command structure permit an unequivocal statement of the highest interest and objective of the intelligence program, viz.: "*The primary mission of Army intelligence is, and for the foreseeable future will continue to be, the collection of information and the production of intelligence on the Sino-Soviet Bloc Nations.*"⁵ (Italics are in the original.)

⁵ Department of the Army Intelligence Collection Instruction (AR 381-25), March 1, 1956.

The emphasis in Foreign Service instructions is not so pointed. Because of the multi-purpose nature of Foreign Service missions, the responsibility and orientation of each must be principally to the host country. In practice, however, it can be shown that for many posts this difference in orientation is more an appearance than a reality.

In the structure of military intelligence, counterintelligence and security are under the direction of the intelligence chief.⁶ In the Department of State, the Intelligence Bureau concerns itself only with foreign positive intelligence. Security and counterintelligence activities are assigned elsewhere. The most amicable of relations exist between the two components, so that many of the positive intelligence fruits of counterintelligence and security are secured for the use of the Intelligence Bureau. From a theoretical standpoint, however, the military pattern is preferable in order that a) all, not *some*, of the positive intelligence data collected by counterintelligence become available, and b) one need not rely on a favorable informal relationship that can quickly change.

The CIA command structure and organization lies between the two poles represented by the military services and the Department of State. Covert and overt operations although separated are responsible to the same chief.

To sum up, some of the differences in organization and command structure of intelligence units reflect the different missions and responsibilities that exist. In the case of the Foreign Service, consular work, protection of and service to American citizens, reporting of economic and allied information for U.S. export-import and producer interests, and the like are important assigned functions, even if non-intelligence, which cannot be put aside. From a manpower and funds standpoint these are major activities of the Foreign Service. It is truly surprising, therefore, and greatly to its credit, that the Foreign Service continues to play the very important role it does in furnishing intelligence information to the U.S. intelligence community.

⁶ In the Department of the Air Force, some security and counterintelligence functions lie under the Inspector General.

The Status of Intelligence Collection

It seems appropriate to conclude this article with some observations on how well intelligence collection has performed in recent years and some personal views and recommendations. Let's look first at the record.

The positive accomplishments of intelligence collection in the postwar years are numerous. Coordination in the field, in good part because of headquarters initiative and action, has improved markedly over that existing immediately after World War II. The Joint Weeka, for example, despite trials and tribulations, has become a very effective reporting instrument which is used and is highly regarded by end-users throughout the intelligence community. A number of programs, such as publications procurement, travel folder, exploitation of international trade fair opportunities, peripheral reporting, and the like, have been established and have proved successful—some more so than others. Periodic Requirements Guides and Periodic Requirements Lists have been useful stimulants and guides for field collectors. The worth and use of CIA covert reports has increased tremendously. From the days when the useful covert report was an exception, the point has been reached where they are truly a valuable portion of the material in the analyst-producer's in-box. Intelligence exchanges with certain allies have been established and operate smoothly. Procedures and methods have been established for effective day-to-day operations. A formal structure (committees, etc.) exists to consider and deal with community problems.

Intelligence collection has thus many accomplishments to which it can point. We are inclined to feel, however, that there should be more. In terms of results, collection has not developed apace with production since World War II. Intelligence collection has suffered from a lack of imagination and from too much formalism. The real gains that have been made must be weighed against the failures to initiate, to exploit, to innovate. Collection has been afflicted with a reluctance to assert itself or to try something new. There is too little seeking out of the end-user, analyst-producers and others, acquainting them with collection's service potential, making suggestions, stimulating. Too often collection waits for the analyst-producer to knock down the door. There is not enough informal interchange between collection personnel on solutions

to common problems, procedures, methods, projects contemplated, etc. To be sure, committees exist with responsibilities in the collection field. But these have formally assigned tasks, assigned participants, and do not take up the workaday, practical operating problems of collection itself.

Needless to say, the above observations will have imperfect and uneven application. Where they exist, the faults are not, of course, ineradicable. We would suggest that the following would go far to righting the situation:

1. Collection should insist on better access to the analyst-producer's thoughts. Capable collection specialists should sit, for example, as observers on lower and intermediate level substantive meetings on estimates and other studies. This would be a practical way of securing detailed, priority requirements. Post-mortems tend now to be broad-brush statements of informational inadequacies, and lack the detail which was available weeks earlier. The analyst-producer, having shot his bolt, is in no mood generally to recover this detail for the collector. We would venture to suggest also that the presence of a capable collector as observer could lead to other benefits.

2. Collection should recruit and select its personnel more carefully. Most of us, as average American motorists, have had the experience of driving an automobile into a garage because the engine, or something, was out of sorts. In seconds the garage mechanic had the motor running smoothly. Collection needs such mechanics. On the other hand, it would hardly be wise to ask that same mechanic to design an engine. An engineer is needed for that. Collection needs engineers, too. In the past, mechanics have been asked to do the job of engineers. This must be corrected. Both good mechanics and good engineers must be secured and be properly utilized.

Admittedly selection of personnel has been hampered by such factors as budget ceilings, salary ceilings on individual jobs, etc. In the long run, with a good case and persistence, these can be overcome.

3. Collection must insist on better support from the top so that it can carry out its programs and implement its ideas. Collection can earn some of this support by doing its job well and being constantly on the alert to assist its chiefs with staff and support work.

4. An effective exchange of collection personnel should be initiated within the intelligence community. It could be established as an adjunct to or within present exchange programs, whichever is more feasible. Consideration should be given not only to the training of the individual but also to the long-run improvement of the different collection organizations. The Intelligence Bureau of the Department of State, which does not take part in existing exchanges, should participate.

5. An intra-community training and orientation course exclusively for collection personnel should be organized. It would throw collection people together and establish ties which could be exploited long afterward. Lectures and course-work could serve to educate, to identify common problems and possible solutions, etc. Subjects which could be covered include evaluation and appraisal of reports, effective briefing and de-briefing procedures, requirements work, and headquarters collection organization. This training, and assignments within it, might provide the basis for community-wide manuals on various phases of collection—evaluations, liaison, briefing and de-briefing, etc.

This recommendation and the one immediately preceding are obviously complementary. They are aimed at increasing the exchange of ideas and experience and at creating informal working relationships.

We have addressed this article to collection and production people alike. Collection is after all created for production. Without good collection, production soon tends to fall qualitatively or become sterile. Production has a distinct right—and responsibility—therefore, to point out inadequacies in collection and demand improvement. On the other hand, production is obliged to give reasonable cooperation in effecting this improvement.

As the intelligence product, the *raison d'être* of the community, becomes more mature, the point is reached where the additional qualitative improvement and refinement of the product depend principally upon the development of improved collection techniques and organization. There are doubtless some in the community who would maintain that we are at that point now.

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A collection officer with an interest in big business urges better exploitation of a particular source of economic intelligence.

PERIODIC REPORTS BY INDUSTRIAL GROUPS AS SOURCES OF INTELLIGENCE INFORMATION

Charles H. Helsper

The major part of the world's economic and industrial activity is conducted by corporations, combines, associations, and other industrial-commercial groups which possess a corporate identity, engage in corporate action, and pursue corporate objectives. These identities, actions, and objectives are in aggregate decisive for the course of the free economies and not without influence in the controlled ones. Yet the intelligence community, for all the enormous effort it devotes to acquiring economic data, has not addressed itself to the systematic study of industry at the corporate level.

The basic source for such a study is provided by the periodic reports of the corporate bodies themselves. Their own statements about what they have done, are doing, and aim to do may need correction from other sources, but constitute at least the starting-point for this fundament of economic intelligence.

The corporate report has become increasingly reliable in recent years. There are many influences, industrial and governmental, which provide incentive for truthful corporate reporting. As a means for transmitting information to the frequently far-flung management of an organization, the corporate report has wide acceptance in financial and industrial control centers.¹ In the field of stock corporations the spread of ownership has required management to utilize the annual report as a mechanism for communicating with stockholders, who now participate more actively than ever before in determining the course of the corporate body.² Management has found it necessary to explain its actions in detail.³

¹ See Paul Douglas, *Communication Through Reports*, Englewood Cliffs, N. J., 1957, p. 315.

² *Reporting to Employees and Public on Profits and Productivity*, American Management Association, New York, 1946.

³ "Giving Stockholders Their Day," *Business Week*, 29 June 1957.

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Periodic Reports By Industrial Groups

The supervision of securities markets has also contributed to increased fidelity in corporate reports. They are now scrutinized in all major financial and industrial centers. International investment and banking houses are among the many powerful interests urging further improvement in their reliability.

What kind of information is contained in foreign corporate reports? They lack uniformity both as to subjects and as to wealth of detail, but do in aggregate contain a wide range of data; and their very omissions are often indicative. Some of the things they cover are listed below.

Tie-ins: The name of the corporate body itself, the names of associated industrial and economic leaders, and those of subsidiaries and affiliates reveal inter-group tie-ins. Similarly data on contract relationships and stock ownership.

Production Statistics: Authentic plant statistics which could otherwise be obtained only by covert collection are often available here. Expected production goals may indicate forthcoming industrial shifts long before they become evident in trade journal articles. Production figures on the corporate level are frequently more revealing than consolidated national statistics.

Financial Data: Corporate reports are among the very best sources for all types of financial information. Changes of ownership, bank loans, and financial dictation and control are often revealed in the explanation of financial developments. Reports of top holding companies which include details on subsidiaries and affiliates in their consolidated financial statements may be the only source of information on these subsidiaries and affiliates. The report may betray a financially weak corporation, one ripe for Communist bloc penetration.

Area Development: Reports from the extractive industries often provide information on new discoveries and strikes of strategic and critical materials, data ordinarily difficult to secure. Corporate determination to exploit or not to exploit discoveries and the reasons therefor may sometimes be included.

Labor: Corporate reports reveal the relationship of owners, managers and controllers of capital to industrial labor, one of the most important aspects of modern industry. As the col-

lective opinion of the leaders of industry these reports have greater weight than the attitudes expressed by individual officials.

Production Methods: The inauguration or development of new production methods often determines the major trends and movements in an industrial field. Corporate reports often comment on new methods which show promise, and thus provide insight into the confidential area of industrial know-how.

Markings: Industrial and commodity markings are increasing in use and significance. Corporate reports often provide markings information obtainable by other methods only at great cost.

Plant and Installations: The corporate determination to expand, replace, or abandon facilities is revealed, often with full explanation for the action, in corporate reports. Pictures of facilities and details of the structure and capacity of new plant units are sometimes included. Reported intra-plant reorganizations and additions may foreshadow radically new products or production methods based on some scientific break-through.

Trade: Past trading operations are often reviewed and plans and objectives of future marketing policies outlined, including plans for trade with and in the Iron Curtain areas. The expected results from such trade are sometimes included in the discussion.

General Policy: Some corporate reports set forth the group's policy on a diversity of subjects. Shipping companies may discuss policy relative to handling Iron Curtain cargoes or their plans for sale of bottoms to Iron Curtain countries.

Corporate reports as a source of economic intelligence have certain other advantages. Although their information is usually of a current nature, some of it is relatively basic. A study of railroad car markings in the Far East made in 1954 found its best lead to the markings system in the 1940 annual report of the Canton and Kowloon Railway.

Another advantage of the reports is their frequent availability in English, because of the predominance of the English-speaking nations in financial markets of the world. U.S. foreign aid programs and U.S. capital investment in foreign countries is broadening the practice of publishing reports in English as well as in the local language.

U.S. Government agencies and some private concerns have in past years devoted considerable scattered effort to the collection of foreign corporate reports, most of it unfortunately in different special fields of interest. The Comprehensive Economic Reporting Program (CERP) of the State Department is the most nearly systematic. But in its country programs, subject to review by many governmental agencies, corporate reports frequently fall by the wayside in the struggle among collection priorities. Its directives to the collectors in many countries contain little or no reference to the need for corporate reports. Some mention the name of a particular corporate report believed to be of value, implying that no others are wanted. Periodic reviews of CERP program results, however, frequently include recommendations for more corporate reports.

Military attaches have also collected corporate reports for limited periods and for special purposes, such as military equipment procurement programs. There is a lack of continuity and consistency in military programs requiring corporate level data which seriously limits military collection of this type of data.

The Securities and Exchange Commission receives a copy of a report whenever a foreign security is placed on a domestic securities market, and has acquired by this means a sizable collection. Its usefulness for intelligence purposes is limited by its fragmentary nature, by the necessity to keep it within the confines of the Securities and Exchange Reference Room, and by the fact that it is not indexed.

Industrial trade associations and city and state industrial libraries have shown considerable interest in corporate reports. But their files, located in New Orleans, San Francisco, or Chicago, are not readily available to the intelligence analyst. Frequently he may not know of the existence of reports in these libraries because not all special libraries index them.

Business travelers, both corporate representatives and private tourists, sometimes obtain corporate reports from organizations in which they have an interest. These become lodged in private files or corporation libraries and are unknown and unavailable to the intelligence community.

Business directory publishers and financial analytical services in the United States and other English-speaking countries

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obtain many corporate reports. But their working files are private property containing much confidential information, and intelligence organizations can secure access to them only by courtesy. Dun & Bradstreet and McGraw-Hill in New York and Kelly's in London make their publications available, but these are rewritten and hence once removed from the statement by the originator. Moreover, the explanatory portions of the reports they receive are frequently excluded from the published manuals.

The Census Bureau has obtained certain reports in exchange for Census publications. The Export-Import Bank often secures corporate reports in connection with loan applications, and the Department of the Interior obtains reports from certain foreign mining, petroleum and other natural resource producers.

This variety of fragmentary collection mechanisms needs to be coordinated and supplemented in order to establish a consistent collection effort to assemble foreign corporate reports of all kinds for U.S. Government purposes. Collection costs would be low. Many foreign corporate reports can be obtained free on request. Others can be obtained by subscription from reporting organizations such as McGraw-Hill or Dun & Bradstreet or their European counterparts. The average cost per report should not exceed five or ten dollars.

At the very least those reports now received within the government should be collected into a central file. Research analysts could make use of a centralized economic library maintaining a file of corporate reports, just as the Military Services Medical Library now serves in its field all three military departments and other government organizations.

It is true that foreign corporate reports are of value primarily for intelligence on the free economies. But the interplay of these economies with those behind the Iron Curtain is a phenomenon of growing magnitude with the growth of the Communist bloc's aid-and-trade program, and corporate policies and plans in the free world may have much to do with the success or failure of that program. As the products of the Soviet industrial machine begin to influence conditions on the world market, owners and managers in the West, via the medium of their annual reports, will outline their actions and

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plans to counter these influences; and economic intelligence must take such counteraction into account.

It is not to be excluded, moreover, that the reports of corporate bodies even in the area of controlled economies, especially on its fringes, may in time become available and provide deeper insight or more useful detail of economic intelligence directly on the Communist bloc.

An indexed file of corporate reports should be supplemented by a compilation of the proceedings of international organizations in the industrial and scientific fields. Such organizations, uniting private or national groups in pursuit of objectives varying from standardization of railroad equipment to preemptive regional marketing agreements, hold meetings where the powerful representatives of industrial and scientific elements discuss issues and sometimes reach conclusions. Their agreements are items of economic intelligence, their disagreements sometimes even more valuable ones.

At the present time there is no centralized library of international organization reports. It is one of the needs of the intelligence community. These bodies, in the nature of super-governments, are of such importance as to justify regular collection of all proceedings. The influence and number of these organizations will continue to grow as the world becomes smaller through economic interplay and improvements in all forms of communications and travel. The advent of newly industrialized countries and areas will increase the scope and power of world associations, and determinations made by newly formed international organizations will profoundly affect developments in all fields of industry and science.

*An intelligence officer surveys
his new opportunities and prob-
lems in a coexisting world.*

COEXISTENCE AND COVERT COLLECTION

George Romano

The collection of intelligence information is greatly influenced in its purposes and methods by the state of international affairs; changes in the world situation can create or improve certain opportunities for collection and diminish or even deny others, while shifts in world opinion may seriously affect the advisability of undertaking particular types of intelligence activities. The present time is one of rapid change in world affairs; in general it provides expanding opportunities for collection operations abroad, but at the same time it renders the exposure of these operations by the opposition more damaging than before to our national interest.

In the five years since the death of Stalin the strategy and tactics of the USSR in international relations have changed radically; the old rigidity has made way for a more supple, varied, and resourceful approach; threats are interlarded with promises, and even the customary propaganda blasts at the United States are now mixed with occasional praise. The Soviets themselves have invented the name "competitive coexistence" for their new approach. They have come a long way since they and their Satellites sulked behind the Iron Curtain; the deep distrust which they formerly exhibited and which they in turn inspired has considerably lessened, and their protean behavior makes the contest for world opinion generally more difficult for the West.

In this world of competitive coexistence our diplomats, our propaganda specialists, and our intelligence officers must suit their methods to the changing opportunities and obstacles of the moment. One of the present opportunities for intelligence collection lies in the increase of contact between Soviet and American citizens. Restrictions on travel to and within the United States have always been few, whereas such restrictions have been numerous in the Communist states, so that the present changes gradually reduce our relative disadvantage. But

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an obstacle is also hidden in the fact that East and West, and particularly the Soviet Union and the United States, have adopted a less antagonistic posture on the world stage: we are compelled to exercise greater restraint in the conduct of activities which could be publicized by the Soviets as instances of unprovoked hostility. One would expect the Soviets, incidentally, to feel constrained in the same way, but apparently they do not; their intelligence activities have become more blatant and offensive at the very time they profess a desire to improve the political atmosphere.

The Opportunities of Coexistence

The most obvious opportunity for collection is of course that afforded by the increase in travel to and within the USSR. The flow of travel has risen steadily since the exchange of agricultural delegations made the first notable breach in the Iron Curtain in 1955. The most recent development in this field is the agreement signed by the United States and the USSR on 27 January 1958, which provides for "a large number of technical, scientific, and cultural exchanges, including an exchange of radio and television broadcasts." This agreement may be a prelude to further understandings; President Eisenhower's reply in February to a Bulganin letter proposed that other Soviet citizens come to the United States, not in search of technical knowledge but to meet the American people and see for themselves that we want peace. Soviet Ambassador Mikhail Menshikov has expressed a desire to visit California, and this may be an indication of the Soviet Union's willingness to negotiate with the United States the easing of travel restrictions imposed on each other's representatives. Furthermore, it is probable that the Satellite countries of Europe will follow the example of the USSR in developing exchanges with the United States. The expansion of private travel and contact is a trend that governments find easy to encourage but difficult to reverse, and every new increase lends impetus to further popular demands for expansion.

As the volume of travel has increased in recent years, travelers into the Soviet Orbit have brought back more and more information. An intelligent traveler can collect valuable information without once discarding his ostensible role as a traveler if he has had competent briefing on specific requirements and

on local conditions and is subjected to detailed debriefing on the information acquired and on the various circumstances in which it was obtained. The value of the take is cumulative, as new information complements, corrects, or confirms the earlier. Sometimes it supplies the last missing piece of a puzzle: one well-briefed traveler gave such an accurate description of the power-line characteristics of a certain area that analysts were able to determine the type and capacity of a strategic installation. Another alert and well-prepared traveler, making the most of an unexpected opportunity, obtained without incident the best photograph available on a priority military target while his plane was in flight between two principal cities of the Soviet Union.

One very productive traveler is the tourist, the curious, talkative, uninhibited American tourist, with camera attached, who has become familiar in most parts of the world. His nerve and persistence are often rewarded: one tourist overcame a guard's initial objections at an airfield and was allowed to photograph a new plane from every angle; in fact, he even obtained the dimensions of the airfield. Suspicion and resistance vary in different regions and with individuals; they are generally much reduced in the outlying areas. The traveler who is a specialist in subjects of priority interest can be particularly valuable, but his effectiveness is greatly reduced when he travels in a group, as often happens, and is given a guided tour organized by the host government; furthermore, many of these specialists fail to notice what lies outside their professional interests. The persons who will go to the USSR by virtue of the new cultural agreement will be such specialists, and they will probably be chaperoned much of the time; however, any increase in travel to and within the USSR is useful because it aids those travelers who are active in collection by making them less conspicuous.

The trend towards increased contacts between Soviet and American representatives in non-Communist countries is also continuing, and there are indications that the cultural agreement between the United States and the USSR will be the occasion for an intensification of the Soviet campaign, under way for many years, for the development of such contacts; a Soviet press secretary shortly thereafter made a specific reference to the January agreement when he approached his American counterpart with a proposal for social contact. Here again we

expect to gain by reciprocating, and the position of the United States Government in favor of such contacts has been laid down in Department of State instructions in December 1954, March 1955, and January 1956. There are certain countries, of course, where contacts between Soviet and US representatives would, because of local conditions, be detrimental to our national interest, and the US ambassador can restrict or forbid such contacts.

So far we have derived a considerable amount of information from social contacts with Soviet officials, although we must concede that the Soviets themselves have received corresponding benefits. The best of the information is that which has helped us identify Soviet intelligence personnel, monitor their activities and determine their targets and methods. We have obtained a lesser amount of political and economic information; the political information has been particularly valuable when it has helped explain sudden changes in the leadership of the USSR. Social contacts also prepare avenues of defection for Soviet Orbit nationals who may some day choose to remain in the West.

The Soviets must of course be aware of the opportunities afforded our intelligence effort every time they lift the Iron Curtain a little higher and must have chosen to accept this risk in the course of a strategy of peaceful gestures designed to win over the neutrals and neutralize our allies. We can expect more vigorous wooing of both neutrals and allies in the future, and another opportunity for intelligence collection is presented in the Soviet cultivation of these people in their own countries and invitations to view recent achievements in the USSR. The intelligence services and other government agencies of friendly countries can be of great use in helping us monitor Soviet overtures and in giving us an opportunity to guide the responses. Individual nationals of neutral countries can be particularly useful when they cooperate with us, because the Soviets can be expected to speak more frankly with them and allow them more freedom of movement within the USSR.

These are, in brief, the principal advantages we derive from coexistence — more freedom of movement for Americans and their friends to look around the USSR, and a better opportunity to elicit information from Soviets abroad, both directly and through local sources.

The Hazards of Coexistence

The Soviets hope that their new policy of easing tension will release among the neutrals and our allies those forces which, for different reasons and in varying degrees, press for closer relations with the Communist countries. It will therefore be more important than ever that we be informed of any changes in the attitudes of friendly and neutral governments as they occur; our liaison contacts can be very valuable in this respect. We will have to develop greater effectiveness in countering Soviet efforts at persuasion, subversion, and penetration in other countries, because these efforts will be exercised in a more relaxed and therefore more favorable atmosphere in the future.

While coexistence has opened new avenues into the USSR, it has also created a political atmosphere that will force us to exercise greater restraint in the conduct of certain types of operations, and in some cases to abstain altogether. At the height of the cold war, which was also the time of the hot war in Korea, we could use normally objectionable methods like the violation of a target country's air space without worrying too much about hurting its feelings. We became more careful at the first thawing of the Soviet attitude, and we will probably have to exercise even more caution and restraint in the future.

The agreement of 27 January is an expression of good intentions on both sides. The Soviets will probably not be inhibited in their future behavior: at the very time when Bulganin was trying to persuade the nations of Western Europe of the purity of Soviet motives, three Soviet service attaches were expelled from Holland for espionage. We value our reputation more highly, and it will be important to us not to appear, in the eyes of a watching world, to violate our professed good faith. More than ever, we will have to examine all that we do in terms of the damage it may cause our reputation among the various nations of the world in the present international atmosphere.

The political climate of coexistence has had a restricting effect on illegal cross-border operations. This type of operation has always been difficult; the internal controls in the Communist police states make the maintenance of an illegal agent for any length of time extremely precarious, and there are no indications that these controls will be relaxed. Now, in addi-

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Coexistence and Covert Collection

tion, there are stronger political objections to certain methods of agent infiltration, and we may have to forego some operations because the repercussions in the event of exposure would be more serious than formerly. In illegal operations conducted jointly with friendly services, the problem is compounded by the fact that the friendly government may have political reasons of its own for vetoing the proposed operation. Nevertheless, illegal operations will be undertaken when the information desired is important enough to justify the risk, when agents suitable for the job are available, when the reliability of the reporting can be checked, and when the same information cannot better be acquired through other means.

These are in general terms the prospects for covert collection in the new age of coexistence. The present conditions may change at any time, in which case our methods would probably have to be revised to suit the new circumstances. It seems, however, that the trend towards more normal relations with the USSR, and therefore towards less hostile techniques of intelligence gathering, will continue for some time to come.

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In this and the following article two research psychologists debunk some of the exotic methods of suggestion attributed to the Communists and ballyhooed for commercial use.

CONDITIONED REFLEX, DRUGS AND HYPNOSIS IN COMMUNIST INTERROGATIONS

Leonard Hilden

The dramatic confessions of persons brought to trial by the Communists and the pro-Communist sentiments expressed by some Americans released from Communist prisons have led to much speculation about Communist use of Pavlovian conditioning techniques, drugs, hypnosis, and other exotic means of controlling human behavior. This speculation presupposes that behavioral scientists participate in the formulation and development of Communist control methods.

A specific investigation of this supposition has been undertaken. The findings of this investigation are that scientists have *not* participated. The uniformity of control methods throughout the Communist countries makes it apparent that they have been organized into a more or less formal body of doctrine,¹ and it is known that those who use the methods are trained in the doctrine and try to follow it, but all of the evidence points to the fact that the doctrine was developed and organized by the police officials themselves.

The central staff of the KGB and its predecessors does not have any section devoted to psychological or medical research. No scientists are known to have participated in the planning of any of its procedures. It is said that during World War II Beria maintained a highly secret laboratory section in Moscow, in which physicians and other scientists attempted to develop new methods of covert poisoning and other means for eliminating or disabling target individuals. He and his as-

¹ For a description of these methods see Hinkle and Wolff, "Communist Interrogation and Indoctrination of 'Enemies of the States,'" AMA Archives of Neurology and Psychology, August 1956, Vol. 76, pp. 115-174.

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sociates were inspired by the activities of the Gestapo along these lines, and established their laboratory primarily in order to keep up with technological advances in the field. It is reported that the results of this work were disappointing and the whole outfit was abolished shortly after the war. The physicians who took part in the work were not considered top flight and were looked down upon by KGB officers in general.

Soviet and Satellite police officers have an earthy contempt for psychology in general and for psychologists and psychiatrists in particular. Former secret police informants are unanimous in affirming that no training in psychology or psychiatry is given to officers who attend the KGB schools.

Aside from the question of scientific participation in formulating procedures, reports on the actual use of these exotic devices is also negative. There are reports of Communist experimentation with them, but no instance of operational use except for normal medical purposes.

Much of Soviet psychology is concerned with adaptations of the conditioned reflex concepts of Pavlov, one fundamental aspect of which is the belief that men can deliberately be made to develop predesigned types of thought and behavior under appropriately controlled environmental conditions. Soviet laboratories have experimented with a variety of situations for the acquisition of conditioned reflexes, and the conditioning method has proved useful in describing and predicting the learning of simple behavior sequences. But so far as can be ascertained the limited scientific applicability of conditioning to intelligence operations has never been exploited by the Communists.

The KGB has a medical department which is organized along the lines of the medical departments in our armed forces. Its mission is to take care of the illnesses of prisoners and KGB personnel. It does include a few psychiatrists, but no medical officer or psychiatrist is ever used in the interrogation process itself. Their function in relation to prisoners under interrogation is simply that of evaluating the state of their physical and mental health, advising the interrogator when men are too ill for further interrogation, and treating prisoners for the effects of the tortures which have been carried out on them. They sometimes administer stimulants to tired or sleepy prisoners to enable them to continue with prolonged interrogations.

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They may give sedatives to excited prisoners. They use antibiotics, vitamins, and any other available adjuncts of medical therapy in the treatment of wounds and illness. But we have no reliable evidence of any direct medical or psychiatric participation in attempts to elicit information from prisoners or to produce confessions.

Since the time of the purge trials there have been recurrent reports that the Communist secret police use drugs as a means of obtaining confessions. All the reports which could be found have been reviewed. In no case has it been possible to obtain any substantial evidence that any drug played an important role in a known interrogation or confession. Our informants, former Communist secret police officials, state that no drug had been issued to the MVD for use in interrogations as late as 1953.

There is good reason to believe that secret police in the Communist countries, especially those of Czechoslovakia and Russia, have *experimented* with the use of all the commonly known psychochemicals and so-called "truth drugs." The drugs of potential importance in interrogations fall into three categories, stimulants, hypnotics, and hallucinogenic agents.

The stimulants, in general, have the effect of increasing wakefulness and alertness at the expense of creating tremulousness, feelings of anxiety and overactivity. Caffein, benzedrine, and dexedrine fall into this category. There are a number of derivatives of benzedrine which have essentially the same action. "Aktedron," a synthetic benzedrine derivative, has been used in Czechoslovakia and Southeast Europe. Coffee and benzedrine derivatives are sometimes administered to tired or sleepy prisoners in order to wake them up enough so that the interrogation can be carried on. They have been used in this manner in Eastern Europe, in Russia, and in China. In and of themselves they have no important effect in producing confessions. Used in combination with a system of psychological and physiological pressures they will in many cases accelerate and exacerbate the profound fatigue, confusion, loss of critical judgment, and breakdown of resistance which is a consequence of the full course of control techniques.

The so-called "hypnotics" do not actually produce hypnosis. They are sleep-producing drugs which have a moderately in-

toxicating effect in small doses. The barbiturates such as nembutal and phenobarbital fall into this category. So-called "truth serums," sodium amytal or sodium pentothal, are rapidly acting barbiturates administered by vein. When these drugs are given in the proper dosage, they have a relaxing and befuddling effect similar to that produced by moderate amounts of alcohol. Under some circumstances, individuals intoxicated by these drugs become loose in their talk. But they have no effect in producing truth, and persons under their influence can resist their action to the same extent that they can resist the action of alcohol. There is no evidence that the Communists have effectively or extensively used amytal interviews as a means of extracting confessions, although it is quite probable that they have experimented with this maneuver. The hypnotic drug which is most frequently mentioned as a Communist tool is scopolamine, a naturally occurring substance long known in medical science. It is one of the ingredients in the "twilight sleep" medication used by obstetricians on women in labor. It, too, has an intoxicating and befuddling effect in small doses, an effect which would be difficult to distinguish from that of the profound fatigue, sleep loss, undernourishment, anxiety and confusion produced by the usual Communist control techniques.

In every instance in which there is direct evidence that Communist police have given hypnotic and sedative drugs to prisoners, they have administered these drugs for the purpose of calming and relaxing excited and fatigued individuals. American physicians would be likely to use these drugs in a similar manner for the same reason.

The hallucinogenic agents have likewise been known for a long time. Marijuana falls into this category. Persons under the influence of these agents have a disturbance of their thought processes which can be profoundly disorganizing to them. During the past few years LSD-25 and mescaline (a derivative of a Mexican plant) have attracted much attention because of their use in experimental psychiatry. It is known that the Russians, like other intelligence services, have investigated both of these substances, but there is no evidence that they have ever used them in attempts at operational interrogation.

It should be emphasized that the covert administration of *any* drug (stimulant, hypnotic, or hallucinogenic agent) can produce an impact on the individual undergoing the stress of prolonged imprisonment and interrogation which goes beyond merely accelerating the fatigue, disturbed judgment, and other effects of the usual prolonged control pressures. The covertly administered drug can make the prisoner feel that the interrogation is affecting him more than it really is. It may make him feel that the interrogator is more powerful or more prescient than he really is, or that the situation has become more intolerable and inexorable than it is in fact.

This impact can be exploited by an interrogator to increase the prisoner's cooperation, providing the interrogator is sufficiently perceptive and appropriately flexible in his approach. To what extent this fact is known to the Communists we cannot say. It is likely, however, that so long as they continue to employ the doctrinaire approach of their present imprisonment-interrogation procedure they will not have sufficient flexibility to exploit this aspect of drug effects.

Another question that recurrently arises is whether prisoners at the time of police confession are in a state of hypnosis. No evidence of the use of hypnotists or of hypnotism in any of the Communist confession procedures has been found. At the time of his Gestapo-like experiments, it is said that Beria experimented with the use of hypnosis also. Our informers state that the experiments were a failure and the attempts did not continue.

Although formal hypnotism is not used, the confession routine as it has been described does create in those exposed to it an increased degree of pliability and suggestibility. It is not clear to what extent the Communists are aware of this and purposefully exploit it.

THE OPERATIONAL POTENTIAL OF SUBLIMINAL PERCEPTION

Richard Gafford

Perception is demonstrated to have occurred below the threshold of conscious sensory experience when a person responds to a stimulus too weak in intensity or too short in duration for him to be aware of it. Individual behavior without awareness of the stimulus, of which subliminal perception is a subtype, has been a subject of study in psychological laboratories for at least 70 years, and a great deal of technical data has been collected on the subject. Recently it has been associated with some theories of depth analysis and popularized for possible commercial exploitation by the advertising world.

In the most sensational of these popularized experiments, an increase in popcorn sales in a New Jersey movie theater is said to have been stimulated by subliminal interruptions of the feature film with an advertisement urging the patrons to buy popcorn. The exposure time used, a small fraction of a second, was too brief for conscious discrimination by an observer absorbed in the film story but presumably long enough to have some stimulating effect. The advertising men who are currently interested in this phenomenon as a sales technique argue that the short-duration stimulus appeals to a positive motive, for example an appetite for popcorn, without arousing the rational, conscious sales-resistance of the individual, based perhaps on the desire to save money or lose weight.

The argument becomes more complicated with respect to a product which there is no specific preexisting positive motive to acquire. The appeal is now said to be directed to a "deep" underlying motive presumed to be always operating, never satiated, say the sex drive. The masked stimulus arouses some aspect of this ubiquitous sex drive, a drive which can hardly be directly satiated in polite society and one of which the conscious recognition is more or less anxiety-producing. The vague discomfort the individual feels as a result of subconscious stimulation must be allayed by some associated gratification, and this gratification — the advertiser hopes — is the socially

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acceptable acquisition of the product which he is trying to promote.

It is evident that there are several mighty leaps in logic in the advertising man's argument, and a great many places where his scheme can go astray. He has taken several psychological phenomena which have been demonstrated to a limited degree in controlled laboratory experiments and strung them together into an appealing argument for a "technique." Because part of what he is promoting is supported by laboratory data, however, it has enough status to warrant serious attention.

The operational potential of other techniques for stimulating a person to take a specific controlled action without his being aware of the stimulus, or the source of stimulation, has in the past caught the attention of imaginative intelligence officers. Interest in the operational potential of subliminal perception has precedent in serious consideration of the techniques of hypnosis, extrasensory perception, and various forms of conditioning. By each of these techniques, it has been demonstrated, certain individuals can at certain times and under certain circumstances be influenced to act abnormally without awareness of the influence or at least without antagonism.

After careful research on each of these methods, however, it has become apparent that although they occasionally produce dramatic results, their lack of reliability and their requirement for extremely precise controls to obtain the desired effect have limited their operational utility to a very few very specialized instances — situations where just the right persons can be put together at just the right moment under closely controlled circumstances. The primary danger observed in connection with this unreliability is that of a "flashback," of inadvertently producing just the opposite effect to that desired. Subliminal perception as a practical control or persuasion technique is prone to the same difficulties.

There are four principal categories of behavior without awareness.

The individual may be unaware of:

a) his behavior itself.

He may be whispering without realizing he is whispering, or he may be moving into a trap without knowing that

the trap is there. A special case here is abnormal behavior in which the individual fails to realize what he is doing because his normal awareness and self-control have been interrupted by disturbing agents such as fear, anxiety, illness, drugs, or hypnotic suggestion.

b) the relation of his behavior to some stimulus.

The individual may be unaware of the fact that his interrogator is influencing him by saying "Right" after certain statements and by remaining noncommittal after others. The process called "operant conditioning" falls into this category.

c) the stimulus itself, because of its slight impact.

The individual may be unaware of a very faint sound or a quick flash of light, unaware in the sense that he lacks the usual visual sensations. Subliminal perception falls into this category.

d) the precise nature of the stimulus, as well as its relation to his behavior, because of inattention.

The individual may be aware of vague sensations, but he is not aware either of the source or of the significant content of the stimulation, although his behavior may change in accordance with changes in the stimulus. This category includes a great deal of perceptual activity affecting ordinary social behavior. A person is often unaware of the specific cues and clues to which he is reacting not because the stimulus is insufficient to reach the consciousness but because the effort to be fully aware of all the cues all the time would create too great a cognitive strain.

In persuading a person to do something he normally or rationally would resist doing an intelligence operative can make use of any one of these categories of psychological processes. Usually the purpose is to produce *behavior* of which the individual is unaware. The use of subliminal perception, on the other hand, is a device to keep him unaware of the *source* of his stimulation. The desire here is not to keep him unaware of what he is doing, but rather to keep him unaware of why he is doing it, by masking the external cue or message with subliminal presentation and so stimulating an unrecognized motive.

In order to develop the subliminal perception process for use as a reliable operational technique, it would be necessary a) to

define the composition of a subliminal cue or message which will trigger an appropriate preexisting motive, b) to determine the limits of intensity between which this stimulus is effective but not consciously perceived, c) to determine what preexisting motive will produce the desired abnormal action and under what conditions it is operative, and d) to overcome the defenses aroused by consciousness of the action itself.

As to the composition of the subliminal cue, it cannot be supposed that just any message presented close below the threshold of recognition will be translated into appropriate action. The determination of the right kind of message in terms of content, number and type of words or symbols, grouping of symbols, and so forth has been the object of a great deal of psychological experiment. There is a good deal of lore and a few rather vague principles available, but generally they concern rather trivial areas of action from the viewpoint of the intelligence operative. Since the effectiveness of the procedure depends on not arousing the person's defense mechanisms, and since defense mechanisms are not only peculiar to each individual but hard to discover, it is difficult to specify even what is to be avoided in the composition of the subliminal cue in order not to arouse the defenses.

Thresholds of recognition are variable and difficult to determine. If the intensity of the stimulus is much below an individual's threshold it doesn't get through to even the most automatic areas of his sensorium. But recognition thresholds vary tremendously, not only among individuals, but also in the same individual from one time to another, in accordance with his physical situation, his physiological condition, and above all the degree to which he is psychologically attuned to the particular content of the message. A normal human being is an infinitely more complex receiving instrument than any electronic gadget, and adjusting a stimulus for such a variable receiver is difficult. In most of the laboratory studies on which the current theory of subliminal perception is based¹ there has been a long pretrial period requiring the subject's full cooperation to zero him in on the subliminal signal. Such preparation is clearly not feasible for operational use. The message must

¹ For specifications and data see "Handbook of Experimental Psychology," S. S. Stevens (ed).

therefore be transmitted on a much wider intensity band and may frequently not get through or may on the other hand penetrate to the subject's consciousness and arouse his defenses.

The message once received is presumed to trigger some sensitive subconscious motivation to action. There are numerous psychological theories about such inner functions, but little definitely known about them. If a somewhat homogeneous sample of people is tested a number of times, most of them will be sensitive most of the time to the subliminal cue; but some individuals, for a great variety of reasons we can little more than guess at, will be insensitive. In this minority of instances the individual may do nothing, may do something trivial and irrelevant, or may do the exact opposite of what was intended.

If the subliminal cue is to work by tripping off an existing motive to action, one must know what motives are positive and operant at the moment. The obvious basic drives (e.g. hunger, sex) are sometimes satiated and sometimes subordinated. With a great deal of knowledge about the individual, some predictability can be attained, but it is still a matter of probabilities. The percentage of instances will be high where the opposite motive to that desired will be tripped off.

There appears thus to be such a myriad of factors that even the most simplified empirical tests carried out with the best possible cooperation of the subjects are rarely marked by really significant reliability. Furthermore, with such a large number of variables and relatively low reliability, it is difficult to determine whether the controlled variable or uncontrolled artifacts are producing whatever results one does observe.

Finally, the subliminal device to avoid alerting an individual's defenses by masking the cue and the basic motive does not cover the effect of awareness of the resultant abnormal action itself, with its implications and consequences. Assuming that one could persuade to such action by presenting a cue subliminally, there is no way of effecting the action without awareness and without tripping off defenses and rational resistance. It must be concluded that there are so many elusive variables and so many sources of irregularity in the device of directing subliminal messages to a target individual that its operational feasibility is exceedingly limited.

This article, the first of a series describing the exploitation of Soviet scientific and technical publications by the intelligence community, corrects public misapprehensions about what happens to these publications in the Library of Congress.

THE DUST THAT ISN'T THERE

George A. Pughe

A rash of articles has recently appeared, both in the daily press and in such a distinguished source as the *Federal Bar Journal*,¹ expressing deep concern over our failure to exploit Soviet and Satellite publications, especially the Soviet scientific and technical literature. With extraordinary uniformity these articles point out that although the Library of Congress "receives between 20 and 30 thousand Soviet publications annually, they are simply gathering dust on the shelves of the Library." The same articles note by way of contrast that the USSR's *All-Union Institute for Scientific Documentation* (VNICI), located in Moscow, has a permanent staff of 2,300 employees who screen and abstract or translate over 11,000 periodicals (largely U.S. and U.K. publications, but including also those produced in the USSR itself) in 85 different languages and publish 15 comprehensive abstract journals in the physical, natural, biological, and earth sciences.

While it is true that the Soviet program is more comprehensive than the combined U.S. effort, this disparity must be read in the light of Western generosity, which gives the Soviets more materials to process. It is fortunately *untrue* that the resources of the Library of Congress are "gathering dust on the shelves."

As early as 1948, the Directorate of Intelligence, United States Air Forces, recognized the vast intelligence potential available

¹ "The Dissemination of Technical, Scientific, and Engineering Information as a Factor in 'Competitive Co-Existence,'" by Jennie and Herschel Clesner. *Federal Bar Journal*, Vol. XVII No. 3, 1957, p. 236.

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in the Slavic Collections of the Library of Congress. At that time funds were transferred to the Library, under authority of the Economy Act of 1932, to support a massive attack on the problem of screening, abstracting, translating and otherwise utilizing all of the information of air intelligence value available in the Library. Since then Project Treasure Island, embodied as the Air Information Division (AID), has been exploiting annually between 40,000 and 50,000 publications currently acquired or previously available in the Library, supplemented by the Soviet and Satellite publications collected by Air Force representatives abroad.

During the period from 1948 to 1951 the principal emphasis was placed upon locating and exploiting economic and industrial information essential to the growing mission of the Strategic Air Command, that is, air target intelligence. Since the Library of Congress was faced at this time with a backlog of some 70,000 uncatalogued Russian publications, the Air Force provided additional funds to obtain the necessary controls over this large body of material, an action which has been of great benefit to the Library, other Federal agencies, and the nationwide scholarly community.

In 1951 Treasure Island broadened its program, by Air Force directive, to exploit information bearing directly upon the Soviet and Satellite military and civil air potential, with particular emphasis upon Soviet Air Force doctrine, strategy, tactics, logistics, equipment, organization, training, and personnel.

In 1953 the Air Force directed that a program extending to Soviet science and technology be initiated and that additional qualified specialists be engaged to undertake the systematic exploitation of the Soviet publications then becoming available in the physical and earth sciences, as well as the related technologies.

At this point it became apparent that much greater emphasis should be placed upon mobilizing and improving all ways and means at hand for acquiring the most recent Soviet journals, monographs, dissertations, and other published sources. As a first step, the Air Force arranged that all Soviet and Satellite publications collected abroad by air attache offices and other personnel should be forwarded directly to AID. For its part, the Library of Congress initiated or expanded a series of actions and programs designed to increase the flow of Soviet

Bloc materials. Blanket orders for virtually all available Soviet books were given to book dealers overseas. Exchange agreements were negotiated with libraries and scholarly institutions in the USSR. At the present time, the Library has exchange agreements with no fewer than 124 Soviet libraries and institutes, the principal agreement being with the All-Union Lenin Library in Moscow. The terms of this agreement call for the annual exchange of 2,500 books and 70,000 frames of microfilm. The Air Information Division has been authorized to nominate about 80% of the specific items to be requested by the Library of Congress under this agreement.

The Air Force has similarly stepped up its collection program by establishing a central document collection office at its European headquarters in Western Germany, by emphasizing the importance of this program in its orientation of newly assigned air attaches, and by developing such devices as "want lists," specific requests for information, and other means for guiding overseas collectors.

These actions have increased the flow of Soviet and Satellite publications by 400% during the last three years, and a recent development promises to yield additional items sometimes missed or simply unavailable through established collection channels. An agreement reached between AID and several libraries abroad which are able to obtain hard-to-get but important items such as doctoral dissertations provides that such items will be microfilmed by these libraries and forwarded to the Library of Congress. Now there is greater assurance that AID will be able to acquire practically all significant Soviet publications through one means or another.

With the collection program effectively under way, the problem for AID is to develop means to exploit all of the material for information of air intelligence value. With the broadened emphasis on Soviet science and technology arises the formidable task of locating and attracting specialists who have not only a fluent command of technical Russian, a reasonable knowledge of English, and an advanced academic background in the physical or earth sciences or related technologies, but also some practical experience in the aircraft-missile industry or in industries which contribute to our air weapons systems.

For the past eight months an active recruiting program has made possible the appointment of additional specialists who

meet these high standards. The qualifications of other appointees approximate these requirements, and many of the older members of the AID staff can also contribute to the exploitation of materials in the field of science and technology.

Nevertheless, it is still desirable and necessary to mobilize talent available outside of AID. The cover-to-cover abstracting of 136 Soviet scientific and technical journals and the critical review and evaluation of all Soviet books available (100 to 150 per month) is beyond the capability of even an expanded AID. As of February 1958, overseas capabilities either in or available to the Air Force have been developed to abstract some 94 Soviet scientific and technical journals. The remaining 42 and all books are processed in AID.

For the foreseeable future, AID will continue to provide special assistance to Air Force contractors who are undertaking special studies and evaluations of different aspects of the Soviet air weapons systems and potential. This requires a specialized pinpointing of desired information, as distinct from a comprehensive exploitation of pre-determined sources. In time, of course, the massive volume of scientific and technical data which will be available through the abstracting and book evaluation program (40,000 abstracts and 1,500 book reviews annually), together with the support of the Air Force Technical Intelligence Center, promises to facilitate the problem of assisting these contractors.

Since the very inception of this exploitation program in the Library, the Air Force has made available to the intelligence community virtually every item of information produced by AID. And while it has no direct responsibility within the Government for making such information available to the public, the Air Force advised the National Science Foundation a year ago (April 1957) that the abstracts and book reviews of Soviet scientific and technical literature were all available for publication and use. Means for making this material available to the U.S. industrial and scientific communities are currently being considered by both the executive and the legislative branch of the Federal Government. Meanwhile, precious little Soviet literature has been gathering dust on the shelves of the Library of Congress.

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A professional logician defines intelligence and draws important conclusions both theoretical and practical.

INTELLIGENCE AS A SCIENCE

R. A. Random

Some writers on intelligence problems suggest that intelligence is a science or at least should be made one. This article examines the question and discusses its practical implications.

We shall need two or three definitions. The first is one for intelligence, and some care must go into its phrasing, for it is central to the argument that follows. In polling some of my professional colleagues, I find no general agreement on the meaning of "intelligence"; each of them tends to particularize his definition so that it covers at best but little more than his own occupational specialty. Each will admit that there are others who engage in activities similar, even very similar, to his, but "what they are doing is not intelligence, strictly speaking." And I find a similar lack of agreement, and of precision, in the literature of intelligence. We must therefore construct our own definition.

The definition of a concept, if the aim is truth and accuracy, is not to be undertaken without due regard for logical principles. Any definition must take the form of a two-part equivalence. The first part is the constant to be defined, or the definiendum, and the second, the definiens, is an arbitrary structure containing only constants whose meaning is either initially clear or previously explained. The definiens, to avoid a vicious circle, must exclude the constant being defined and any other expression previously described with the help of this constant.¹ Further, if the definition is to be useful, or perhaps even logically sound, it has to define the concept not in terms of its properties, but in terms of the unique set of operations with which it is synonymous.²

¹ See Tarski, Alfred. *Introduction to Logic*. New York, Oxford University Press, rev. ed., 1946, p. 35.

² P. W. Bridgeman. "The Logic of Modern Physics" in *Readings in the Philosophy of Science*, Herbert Feigl and May Broderick, ed. New York: Appleton, Century, Crofts, 1953, pp. 36-7.

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In constructing a definition for intelligence we must therefore state its *general* and then its *specific* unique set of synonymous operations. These sets derive from the fact that intelligence is, above everything else, a particular kind of human activity. Our definition must be both comprehensive, in that we omit nothing which is a part of intelligence, and exclusive, in that we include nothing which is not a part of intelligence.

The definition here proposed is the following: Intelligence is *the official, secret collection and processing of information on foreign countries to aid in formulating and implementing foreign policy, and the conduct of covert activities abroad to facilitate the implementation of foreign policy.* This definition appears to meet the logical requirements given in the preceding two paragraphs. Its critics will have to demonstrate that the constants in the definiens, the italicized words, are not components, or do not include all the components, of what is, or may be, generally thought of as intelligence. All of these constants refer to activities that are and have been carried out at one time or another under the intelligence banner, and they are sufficiently particularized by their official-secret designation to exclude other categories of human activity.

Another definition we need is for science. A generally accepted definition has it that science is *accumulated knowledge, systematized and formulated with reference to the discovery of general truths or the operation of general laws.*

If we review these two definitions together, it is apparent that there is nothing in intelligence which precludes its being a science. The unity of science is a matter of methodology, not of subject matter, and intelligence has accumulated knowledge, empirical data, susceptible of systematization and formulation. It therefore *can* be a science. But an examination of the present state of this accumulation with reference to the discovery of general truths and the operation of general laws leads to the conclusion that intelligence probably has not yet reached that status.

If intelligence could be a science, what kind of a science could it be? What developed sciences deal with data similar to the data of intelligence? Is it possible that some developed science, a science that has gone a long way toward finding its general truths and the operations of its general laws, may not have covered all or a very large part of the ground covered by intelli-

gence? Answers to the first two questions will throw light on the methodological problems of organizing the data of intelligence and the formulation of its general truths and laws. An affirmative answer to the third question would suggest that it might be redundant to make a separate science of intelligence.

In the taxonomy of science there is one large grouping called the social sciences, or more recently the "policy sciences." The policy sciences deal with *the integration of values realized by and embodied in interpersonal relationships*. Matching this definition against our definition of intelligence, it is quite clear that nothing in intelligence excludes it from the group of policy sciences as one of their specialized aspects. The general, across-the-board policy science principles or general truths and laws are, then, applicable to intelligence.

Now let us look again at intelligence to see which of its aspects set it apart or distinguish it from some other kind of human activity, or "interpersonal relationships." The more one studies this question, the more apparent it is that if we take away the words "official," "secret," and "covert" from our definition, there is nothing done under the heading of intelligence that is not done in an identical or nearly identical way in the non-intelligence world. But these three modifiers are qualifying and adjectival, rather than fundamental. With this breakdown it is very difficult to see intelligence as a system of related phenomena so specific, separate and irreducible that it must be treated as a separate science. As pointed out above, intelligence *can* be treated as a separate science. However, if obviously related systems of phenomena, or developed sciences, can be extended to include intelligence, and if the differentiating aspects of intelligence are more qualifying than basic, the development of a science of intelligence becomes altogether redundant.

To suggest that it is redundant and impractical to erect a science of intelligence is not to reject the application of scientific methodology to intelligence, and specifically the acknowledgement and use of the principles of the social sciences applicable to the phenomena of intelligence. Such a rejection would reject rationality and scientific principle as a basis for practice, and substitute intuitive guesses and unanalyzed conjectures. While irrational conduct of intelligence practice, like non-principled behavior generally, may become skillful and

may be successful to the extent of attaining particular ends desired, as a rule it can be recommended only as a kind of short-cut in simple situations. When the situation is complicated and the actor is confronted with multiple choices of action, reliance on non-principled behavior introduces an unacceptably high level of probable error.

The propositions advanced above — that it is not profitable to develop intelligence as a separate science because the phenomena with which it deals are covered by the social sciences, and that the only sound practice of intelligence is that based on the scientific method as specifically applied in the social sciences — have important practical implications. The main one of these is that we must build up within the intelligence community a knowledge of scientific method and the techniques and principles of the policy sciences and must study their application to intelligence problems. We must do this because it is the only way to effect any fundamental improvement in professional intelligence practice.

For the intelligence officer to concern himself with scientific method and its application in the policy sciences and with the application of the principles and techniques of the policy sciences to his work may seem to introduce complexity and irrelevancies into an already complicated business. It may seem "theoretical" in the invidious sense of the word, that is impractical. Yet if he does not do this, he opts for non-principled, irrational activity patterns, and he has no place else to go to find the principles basic to his professional activity.

Since World War II a great deal of progress has been made in finding practical application for improved social science methodology and techniques, progress comparable in quality, if not in breadth and depth of application, to contemporary technical advances in physical science. While most of this progress in practical application has been in the military field (in use of weapons systems as distinguished from weaponry itself, a sub-discipline of physical science and technology), and in economics (applications in business and industry), there has been some attempt at application of the other policy sciences. However, there is a considerable technological lag in adapting new methods to some fields of endeavor that derive their principles from the policy sciences. When one examines some of the work that has been done in such organizations as

the Rand Corporation and notes its application to, say, business and industry, one is forced to conclude that kinds of activity similar to intelligence make fruitful use of techniques of which we in the intelligence profession are only dimly aware.

To list in detail new social science techniques which could be of practical use to intelligence would require a thoroughly annotated bibliography of a length beyond the scope of this paper. It may be said here that the progress in this field stems mainly from developments in logic, where it takes such forms as symbolic logic and heuristic science. These developments are basic to the current progress in both the physical and policy sciences. Those interested in this newer logic can consult Hans Reichenbach's *The Rise of Scientific Philosophy*, reprinted in 1957 in a paperback edition by the University of California Press. As an example of technique derived from the development in logic, one might cite Operations Research, defined as a scientific method of providing executive departments with a quantitative basis for decisions on operations under their control. This technique is described by J. F. McCloskey and Florence N. Trefethen in their *Operations Research for Management*, published in 1954 by the Johns Hopkins Press. Karl W. Deutsch's *Nationalism and Social Communication*, Wiley & M. I. T., 1953, is a fine example of how the newer techniques can be applied to the analysis of specific political problems.

Introducing these new methods and techniques into the intelligence profession will be difficult. Many of them have not yet been processed to a point where they can have direct practical application. As presently stated, they are often unintelligible to any but social sciences experts with a strong methodological or symbolic-logic bent. Other methods, more developed toward the practical, have been evolved for concrete problems which pertain to the intelligence profession only by extension. What is needed in either case, in effect, is to bring together those who are concerned with the formulation of principles and underlying methods and those — the intelligence technicians — who are concerned with practice, so that the latter can communicate their needs. Once the need is perceived, there is no reason why this kind of consultation cannot be arranged. Through such communication we should derive the insights that we require to improve our professional practice.

NOTES ON QUALIFICATIONS FOR GOVERNMENT RESEARCH AS OPPOSED TO ACADEMIC STUDY

Government organizations for research in foreign political, cultural, social and economic fields depend heavily on research training programs in the academic world as sources of bright new recruits. The meaning of research as a function is clear to both sides, but research in government agencies has in some details of practice moved away from the pattern of action familiar to academic research groups. With this thought in mind, I venture to set down a few pointers to the special qualifications which we in Washington are finding desirable in candidates for jobs with us.

Let me dispose of one point at once. We want young recruits who are well trained in research, who know their subjects, and who know how to evaluate fresh information and apply it to the growing pattern of knowledge which they possess. We want them, furthermore, familiar with as many approaches and disciplines as possible. Above all, we want recruits who are used to looking beyond the "What happened?" to the question "Why did it happen?" We fortunately know that on all these matters the academic programs, especially area programs, are in agreement with us and have precisely these objectives in their training. These are, however, not all the qualities for which we look.

Let me sum up our needs by saying that our recruits must be capable of presentations that are clear, brief, bold and prompt; that their jobs will require them to be cooperative, patient and often anonymous. Behind these simple words lurk serious considerations.

Government researchers work, of course, for operating officials who make decisions on action. It would be useless to pretend that these officials are themselves all stylists; in some, however, the nature and urgency of their work have produced a direct, concise form of writing; in all, whether or not they write gobbledygook of their own, is a firm determination not to master the gobbledygook of another tradition. Unfortunately, we have seen no evidence that education, and especially higher education, has modified its indifference to style and form. It appears that too great emphasis is still put on assim-

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ilation of learning, too little on exercises of active presentation. Facts may speak for themselves, but all too easily they may speak to an empty hall—and the effectiveness of a report in helping officials varies directly with its clarity.

In the modern world, government officials are inordinately busy; they simply cannot contemplate large accumulations of detail. This imposes a singular responsibility upon the supporting researcher. He must not only accumulate information but also condense it—and this not by compressing his accumulation, by reducing a picture to a miniature, but by selection and distillation. In short, he must often act not as an amanuensis but as an authority, whose statement of conclusions will be guaranteed, not by a mass of footnoted detail, but by his reputation for well founded judgments. The responsibility is flattering but awful. One of the great services any training program can do is to insist upon practice in the art of briefly distilling out ideas and conclusions from massive compendia—and, indeed, there is no better device for revealing any flaws or hollowness in externally impressive monuments.

The third quality flows from these two. Any writer will realize that to expose his essential ideas baldly in brief compass requires confidence. Yet the researcher is always contributing towards decisions, and decisions require the stripping down of qualifying factors to essential issues. Decisions further require departing from the footnoted past into a future which cannot be documented but which must be analyzed under the head of possible consequences. We benefit by any curriculum which includes exercise in general ideas beyond the scope of footnotes, and speculation beyond the confine of the documented present.

Lastly, these clear, brief, and forceful presentations have to be accomplished under pressure. Even worse than writing a paper that no one will read is to write one that reaches an officer after he has made his decision—yet the succession of crises is nowadays so close that deadlines come upon the very heels of requests. Promptitude is, we know, part of every course of training. Another aspect of the problem is, however, perhaps less open to action by a training program. Decisions can often not be postponed, and although little knowledge may be dangerous, surely none is worse yet. The researcher may, despite all proper planning and foresight, be called upon for

judgment founded on information that is insufficient but the best *available*, and again he may need boldness if he is to be prompt in fulfilling his advisory responsibility.

Besides these peculiar arts of presentation, certain more general qualities will make the recruit happier and more effective. He is likely to find himself in an organization where few research jobs are performed by a single individual. It is not for us to tell up-to-date academic research authorities that modern problems require a fusion both of disciplines and of regional views; the authorities may not, however, realize the extent to which our agencies are organized to effect fusions of this sort under pressure. Through often feverish processes of consultation, submission of fragmentary drafts, and joint composition, our analysts are collaborators to a degree seldom required in private research, and must possess well developed abilities to cooperate.

By the same token, our analysts in their written production remain largely anonymous. It is impossible to sort out credit for the joint compositions that issue from our shops, though through consultations with other officials and through committee work any analyst can very soon gain sound personal recognition. Even in this respect, however, he must sometimes remain behind the scenes. Higher officials, in attending their own committees, cannot trail clouds of witnesses along with them. The analyst must often be content with briefing some superior to present his ideas, and obtain his satisfaction from any effect, even though indirect, that his thought has had upon policy. Some experts have found this procedure strange, and recruits may well be prepared for it in advance.

Finally, we in our research agencies must be patient. It is generally known that frustration is a besetting evil of government work. The machine is very large, very complicated, very ponderous, and often very slow. It is strange, however, that annoyance at the delays should be so common amongst academic folk whose private work is so often performed *sub specie aeternitatis*—yet we find researchers who get miffed because their first written words are not at once whisked into a public proclamation. The wheels are large; it takes a great spate of words to move one of them a tiny inch; but every inch it moves makes history. This is the reward our business offers to patience.

CRITIQUES OF SOME RECENT BOOKS ON INTELLIGENCE

AIR SPY. By *Constance Babington-Smith*. (New York: Harper and Brothers. 1957. Pp. 259. \$4.00. Also under title EVIDENCE IN CAMERA. London: Chatto and Windus. 1958. Pp. 256. 21/-.)

This story of photo intelligence in World War II is a story of pioneering—not only the pioneering of unarmed pilots in operational high altitude flying, of those who developed the camera models and techniques for this phase of photography, but also the pioneering of imaginative and patient specialists in innumerable fields of activity, dedicated to the translation of photographs into a meaningful language as a basis for important decisions and actions.

The book gives well deserved recognition in print to the heroic efforts of individuals devoted to the service of their countries in the particular field of photographic intelligence. It makes clear to the reader that this was a front-line job of greatest importance, requiring singular courage and perseverance but bringing satisfaction in its accomplishment. Of special satisfaction to the individual was the fact that his task involved the use, not of destructive weapons, but of tools that produced constructive results of greatest effectiveness.

Here are stories of pilots whose only thought was the completion of the task at any cost to themselves. They not only had to take pictures under all kinds of weather and military conditions, but had to get them back where they could be used. The pilots who showed this determination and endurance had learned the importance of the information that could be obtained from air photographs.

But there were not only the pilots. Miss Babington-Smith explains that the use of women as experts in this field was due to Sidney Cotton's conviction that "looking through magnifying glasses at minute objects in a photograph required the patience of Job and the skill of a good darning of socks." She brings into focus the necessity for the many complex aspects of photographic interpretation and intelligence activities, and in particular the need for specialized background knowledge in studying a photograph to obtain specific information.

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The vertical photograph in photo intelligence usage has been found to be a precise mathematical document: measurements of depth, height, width, speed, etc., can all be made, but a working knowledge of fundamental mathematics is one of the background essentials of the trained interpreter. It is also essential that the interpreter know what is to be expected as normal in the appearance of a photo in order to distinguish what is abnormal and then to recognize its significance. A specialist in geology or oil is needed to appreciate the information obtained from photographs of oil production installations. Only a specialist in aircraft industry can translate the language of aircraft factory photographs into data on their activities and production. A cartographer must utilize the information about the layout of the land contained in photographs of specific areas. The techniques of the archaeologist, trained in piecing together positive and negative evidence, are useful in determining the enemy's possible motives. With the detailed figures learned from photographs, sculptors and artists can produce three-dimensional models giving substance to the photographic information. In all these procedures results are obtained by the patient approach and deductive reasoning of the scientist.

The interpreter is responsible for the information he reports, which is then coordinated by intelligence personnel with other reports and sent on to those whose responsibility it is to make decisions as to action. The author conveys to her readers the PI's spine-tingling realization of the importance of an accurate and responsible translation of lines, figures, and shapes into facts and ideas. She high-lights the urgency of the struggle to integrate the many activities involved in photo intelligence and the eagerness with which the various branches of service received its benefits.

The development of effective techniques and the initiative and creative faculties of the British, and later the allied personnel, who used them give this story real drama and challenge. The author emphasizes how much more effective the Germans could have been if the excellence of their photographs had been equalled by the intelligence and imagination of those assigned to interpret them. She also brings home the realization that by now, some years after this early pioneering development of techniques and procedures, there must have been

great strides by others in this sphere of intelligence, with the result that our own activities are doubtless scrutinized and examined in detail by other countries.

In Chapter VII, "Bombing Offensive," the author goes into some detail in describing the role of photographic intelligence in planning operations on the basis of photographic information as to targets, in damage assessment, in learning the secrets of counter-measures, in spotting and tracking down inventions such as the German radar, in industrial analysis and assessment, and in discovering threats of new weapons such as the V-1 and V-2. Perhaps she gives the best insight into photographic interpretation in Chapter IX, "The Battle Against the V-Weapons." For the many who share the current interest in guided missiles, this Chapter is most instructive.

It is paradoxical to note that the photo interpreter of today finds himself in one respect in the same predicament as his forerunner of 1943. When British intelligence was on the alert for "secret weapons" in early 1943, "no one really quite knew what they were looking for, although the Air Ministry did suggest that the interpreters should be on the lookout for three things: a long-range gun, a remotely-controlled rocket aircraft, and 'some sort of tube located in a disused mine out of which a rocket could be squirted.'" How familiar this sounds to the present-day PI, not only with reference to guided missiles, but in other high priority fields such as nuclear energy, rocket aircraft and electronics! In most cases the PI has extreme difficulty obtaining permission to get a first-hand glimpse of actual guided missile, atomic energy, and other critical installations. He finds himself in the position of being asked to find a needle in a haystack without being permitted to see first what a needle looks like.

The book's final chapter describes the valuable contribution made by photo intelligence to the planning of the D-Day landings—the study of the beaches and how they were affected by the cycle of natural influences, the coastal defense interpretations, and the three-dimensional models for use in briefings, giving a vivid view of the accesses and obstacles to those who were to face them.

All through the book there runs the thread of the necessity for careful coordination and integration of photographic intelligence activities, and the plea for continuing progress in this

field to assure concise and unique intelligence whenever it is needed. Repeatedly the author stresses the usefulness of going back again and again to reassess old photographs in a new light with the discovery of aspects not recognized before. Each new find is likely to throw fresh light on the earlier photographs.

Air Spy places in on-the-spot perspective some of the most dramatic events of the war in Europe and brings to light some of the features of planning and decision to which no ordinary civilian can have access. To those already familiar with the names and photographs and efforts of its characters it has a special significance and interest. It is unfortunate that Miss Babington-Smith, not having participated in the photo intelligence activities in the Pacific, was unable to give similar recognition to those whose work there was of outstanding merit and significance.

THE WAR POTENTIAL OF NATIONS. By *Klaus Knorr*. (Princeton: Princeton University Press. 1956. Pp. 310. \$5.00.)

This book was written by a distinguished political scientist as a contribution to the theory of war potential, the measurement of which he considers to be an important task even in a nuclear age. The military strength of a nation is composed of two prime elements: forces in being, both men and material, and the potential capacity to provide additional quantities of military manpower and equipment in a mobilization build-up or in wartime. Professor Knorr is concerned entirely with this potential capacity, a subject of basic importance in intelligence estimation.

Potential military power, the author states, is a combination of three determinants: the will to fight (morale), administrative ability (primarily governmental planning and programming competence in wartime), and economic capacity. This book represents the first general attempt to show how these determinants interact. As such, it is an interesting, informative, and useful contribution. It is a product of extensive and thorough research in a number of disciplines—political science, sociology, psychology, history, and economics. Professor Knorr's main argument—namely, that there is a great deal

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more to the measurement of war potential than economic factors—is beyond dispute.

At the same time, the reviewer is struck by the difficulties of integrating the numerous variables pertinent to the analysis. The economic variables are treated thoroughly. The familiar categories of gross national product, structure of the population, and foreign trade are set out clearly and in detail. Furthermore, the critical point of flexibility in the economy and its relation to maximum war potential is put in needed perspective. However, after the ordering of the factors affecting the will to fight and administrative capacity, the reviewer is baffled as to how these factors can be measured and integrated with each other and with the more traditional economic elements. Professor Knorr does not propose the felicific calculus which would do the job. He limits himself primarily to identification and appraisal. He believes, however, that the techniques of integrated analysis can be developed over a period of time. And perhaps he is correct.

The real question is, how useful would such an effort be, granting the possibility of success, in an age of intercontinental ballistic missiles with hydrogen warheads? The author attempts to take this question into account. He recognizes that potential capacity may be of no particular significance in an all-out nuclear exchange. He also admits that in the "brushfire" type of war, where neither contestant mobilizes more than a fraction of his potential capability, a precise measurement of this potential is not needed. He argues, however, that between these two extremes there is a range of other types of conceivable, and indeed likely, conflicts where the traditional measurement of war potential would be important.

Why does he consider non-nuclear wars of attrition, similar to World War I and World War II, to be a "major contingency?" His answer—because of the possibility that the two antagonists, capable of inflicting near total nuclear destruction on each other, may refrain from using it, except as an act of "utter despair." This is, of course, the familiar concept of the atomic stalemate, and this is the concept which must be examined.

To this reviewer, a true atomic stalemate can exist only under a very special set of circumstances which probably can persist for only a short period of time and which may not in fact ever exist. There are two essential elements for such a

stalemate: (1) the possession by both antagonists of a massive nuclear delivery capability and (2) the inability of either antagonist to cripple seriously the delivery capability of the other. In sum, the stalemate exists only so long as neither side can be sure that massive nuclear attack will not bring heavy retaliation in kind. Much of what has been popularly written about the so-called atomic stalemate has been confused with the unwillingness of the United States to engage in an offensive (or preventive) war against the Soviet Union. But this unwillingness has nothing to do with military capability, particularly when one considers the military value of the first attack under conditions of surprise.

The development of "clean" nuclear weapons or other technological improvements may make more likely their massive use without wholesale involvement of non-target populations, that is without threat to world civilization. In this event, if the Soviet Union were able to neutralize the delivery capability of the United States by using conventional jet aircraft or missiles, a true stalemate would not exist. For if our remaining weaponry were sufficient only to inflict a few million casualties against an alerted Soviet air defense, peace would hang by a slender thread indeed. In the 1930's the Kremlin leadership was willing to pay the price of a few million casualties to collectivize agriculture. When the stakes are world domination, this cost could seem very cheap.

This point, then, is the thrust of my disagreement with Professor Knorr—the belief that a nuclear stalemate or near stalemate has been brought about or that if it is brought about, it is likely to continue for any appreciable historical period of time. For a stalemate would not be a point of stable equilibrium. The one certain fact about military technology is that it changes, and in the postwar period it has changed very rapidly indeed. If this judgment is correct, then the use of nuclear weapons is not a remote possibility, but a distinct probability, in the event of major war.

THE RISE OF KHRUSHCHEV. By *Myron Rush*. (Washington, D. C.: Public Affairs Press. 1958. Pp. 116. \$3.25.)

Research on Soviet politics is somewhat like radar. Because of the secrecy enveloping the target, specialists in the West

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must use a variety of sensitive instruments to record the little blips, or reflections, of Soviet political reality. These numerous blips form a discernible pattern lending itself to interpretation. Focusing his own specialized instruments on the post-Stalin political scene, Myron Rush of the Rand Corporation has attempted to reconstruct an accurate image of the processes by which Soviet party chief Nikita Khrushchev acquired much of the power once held by Stalin. The result of his investigations, *The Rise of Khrushchev*, is a well documented and provocative case study of Soviet politics; but it is its methodology, rather than its conclusions, which is likely to provoke debate among intelligence analysts.

The Rise of Khrushchev is clearly the product of a prodigious amount of work. It brings together an impressive number of facts, and the author frequently shows considerable resourcefulness in relating them. Its distinguishing feature, however, is the author's application of the techniques and conceptual tools of "content analysis" to the obscure world of Soviet politics. It is the author's contention that relationships within the top Soviet leadership are deliberately concealed behind a facade of monolithic unity, but that the existence of differences, and something of their nature, can be deduced from: (1) painstaking study and comparative analysis of public statements and printed texts which, in the author's view, contain "esoteric communications" from the "elite" to the "sub-elite"; (2) observation of the way in which the public symbols of prestige are manipulated; and (3) examination of the use of political patronage. It is on the first two devices that the study is mainly based and on which its results have to be judged.

The author shows rather convincingly that there is a great deal to be garnered from a close reading of the public statements of Soviet leaders and other authoritative sources. These are only infrequently to be taken at face value, but at the same time they are not always empty cant or formula-mongering. They sometimes contain clues to the thinking of the leadership expressed in a kind of algebraic language, and the revision of formulas can often be related to considerations of policy and political maneuvering. Proceeding on this basis, the author examines a vast amount of material covering a broad range of subject matter and arrives at a number of plausible conclusions: the rise of Khrushchev was reflected rather clearly in

published statements and articles and in the manipulation of the symbols of prestige; there have been differences in the top leadership over the issues of power and policy; and there was contention within the leadership over the scope and pace of de-Stalinization. These are some of the merits of the study.

But it also has weaknesses, most of which can be traced to the author's failure to recognize the limitations of his technique of "content analysis." Instead of using this device as one means to an end, he seems to regard it, in practice, as a key which will open any door, as a comprehensive methodology rather than as an analytical tool. This leads to serious abuses — to the construction of elaborate, even labyrinthine, hypotheses from a long chain of inferences, some of which are plausible, some of which are doubtful, and some of which are downright absurd. Inferences derived from "content analysis" should be regarded as a starting point. They should be placed side by side with inferences developed by other means — by the examination of the many sources of policy, the forces and demands created by the operation of policy, the institutional framework, and the international environment. This the author persistently fails to do.

From his starting point, his assumption that *some* variations of phrase or nuances of public expression lend themselves to reasonable interpretation, he proceeds in his analysis to treat every example of this kind of thing, wherever it might appear in the various media of Soviet communication, as a political token. This leads him, in a great many instances, into over-analysis on the one hand and to strained inference on the other. For example, the author contends, solely on the basis of certain textual differences in the Soviet press, that "in the spring of 1955 Khrushchev's opponents succeeded briefly in restricting the powers of the Secretariat." Yet we learn that in the actual arena of Soviet politics Khrushchev not only won a powerful victory over Malenkov in February but also gained a "very substantial increase in power" by the "strengthening of the Secretariat" at the July plenum. The author also maintains that while Khrushchev made "further great gains" at the 20th Party Congress in February 1956, his influence was "momentarily in decline" one month later. To support this view, the author again relies solely on content analysis of speeches

at the Party Congress. In both instances, the author appears to be unconcerned at the discrepancies between the events and symbols he is observing.

When the hypothesis the author is developing runs into obstacles, fine distinctions give way to bland generalizations. He expends considerable effort, for example, to show that in 1954 a "cult of Khrushchev" was developing. Suddenly the signs he has been observing disappear. "Such efforts to further the Khrushchev myth," he writes, "ceased temporarily, however, at about the same time the World War II military lists stopped appearing; both these cessations may have been the result of a general truce which also replaced rank-listings of Presidium members with alphabetical listings (June 8, 1954)." What does a "general truce" mean? A truce between whom and on what terms and why? Maybe his kind of question can't be answered, but certainly, when the author has brought the reader up to this point through an analysis which depends on finely-drawn distinctions, the reader has a right to expect something more than a quick and easy phrase.

Another serious fault in the analysis — one from which every study of this kind seems to suffer to some degree — is its single-mindedness, expressed mostly in a total disregard for the possibility that factors other than factional rivalry influence policy and the forms of public expression. This is particularly evident in the treatment of Mikoyan's position with respect to de-Stalinization. The author attempts to show that Mikoyan, by his forthright public attack on Stalin at the Party Congress, provided high-level backing for the historians who were attempting to revise Stalinist historiography. This is certainly possible. The author goes on from there, however, to assert that Mikoyan probably continued to back the revisionist historians even when they came under mounting criticism by party organs in the fall of 1956. This, of course, completely disregards the influence which the events in Eastern Europe must have had on the Soviet leaders' attitudes toward de-Stalinization.

The study also reveals a broad streak of legalism, Talmudism, in such ways as its elaborate attempt to show how Khrushchev, seeking Stalin's old post of General Secretary of the party, was forced to settle for the title of First Secretary: initially he was

designated "first secretary," then "First Secretary," and finally "First secretary," all of this purportedly reflecting the ups and downs of his political fortunes. There is, furthermore, an excessive preoccupation with historical analogies through which the author tries to establish a clear pattern for the present, for example the unceasing examination of Khrushchev's standing and motives in terms of a comparison with Stalin's career, with little allowance for the important differences in the circumstances in which the two men acquired and exercised power.

These points are merely intended to illustrate the most serious failings of the study. There is no quarrel with the author's facts, which he has assembled in imposing array, nor with his right to draw inferences wherever he sees fit. But it does seem a shame that the total effort should have been marred, and even vitiated, by the author's infatuation with a device which has its uses but also its limitations.

CHILD OF THE REVOLUTION. By *Wolfgang Leonhard*. Translated by C. M. Woodhouse, with an introduction by Edward Crankshaw. (London: Wm. Collins, Sons & Co., Ltd. 1957. Pp. 447. 25/-. Also Chicago: Henry Regnery Co. 1958. \$6.50.)

Child of the Revolution is an English version of a political autobiography published originally by Leonhard in Germany in 1955 under the title *Die Revolution entlaesst ihre Kinder* (The Revolution Dismisses its Children). The word "version" has been chosen deliberately, because this is not really a translation of Leonhard's book. In a translator's note, Mr. Woodhouse states that it "has been abbreviated from the original by the omission of some passages likely to be of less interest to English than to German readers. The responsibility for the cuts is my own. . . ." A quick comparison with the German original shows that it has been cut by more than one third, that substantive passages of interest to the student of Communism have been sacrificed while anecdotal passages of interest to the general reading public have been retained, and—most surprisingly—that the translation of specific passages is not always accurate.

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This last criticism is a serious one. No attempt has been made to compare the translation systematically with the original, but a checkback on a few isolated passages which were puzzling at first reading revealed that Mr. Woodhouse is weak in his understanding of present-day idiomatic German. On page 75, for example, his subtitle "Good Resolution in the Komsomol" stands for Leonhard's original "With Good Intentions into [i.e. I Join] the Komsomol." On page 96, describing Leonhard's application for admission to the Moscow Academy of Foreign Languages, Woodhouse has the academy official say (with a sinister undertone which Leonhard did not intend), "Well, we'll soon see what the meaning of that is." Leonhard has him say, "Well, we'll see what can be done." On page 105, Woodhouse has the subtitle "Fresh Questioning of the German Emigrés" for Leonhard's "Deutsche Emigranten wieder gefragt," an idiomatic expression meaning "German Emigrés Again in Demand."

All in all, this "English translation" is a disappointing version of an interesting and informative book; it should be read only by those who are incapable of reading the German original, and then only with the full realization that it is very much cut down, edited with an eye to "popularization," and by no means dependable in its rendering of the German idiom. In an epilogue of slightly less than 5 pages, which is the only new thing about this edition, Leonhard comments on developments in international Communism since 1955. He does not do them justice.

For anyone interested in Communism or Soviet affairs, the Leonhard story is an important one. His mother was one of the German "Old Bolsheviks" (the Spartakus group) who, while she broke with the Third International organizationally in 1925, nevertheless remained far to the Left in the political spectrum. She took her son with her into exile in the Soviet Union from Sweden in 1935 after escaping from Hitler's Germany. Her story has been told—with far more political and ideological maturity than Wolfgang demonstrates—in an autobiography entitled *Gestohlenes Leben* (Stolen Life, by Susanne Leonhard, Europäische Verlagsanstalt, Frankfurt/Main, 1956).

Wolfgang was placed in a German emigré school in Moscow, and later in a Soviet "children's home" for Austrian emigré children; his mother was arrested by the NKVD a little more than a year after they arrived in the Soviet Union, in the course of the "Great Purge." He joined the Pioneers and later the Komsomol, and studied at the State Pedagogical Institute for Foreign Languages. The war with Germany broke out at the end of the first term, and Leonhard was evacuated with other German emigrés from Moscow to Karaganda, where he was served a strong dose of "Soviet reality." Here is where the story becomes interesting for the student of Communism: Leonhard is summoned out of banishment to attend what is destined to be the final course at the Comintern School in Kushnarenkovo, near Ufa (the Comintern was dissolved while the course was in progress), and the chapter devoted to his experiences there presents this aspect of international Communism to the public for the first time. It is a unique and worthwhile body of information; unfortunately, the translator has edited this section, too.

After the dissolution of the school following the dissolution of the Comintern, Leonhard returned to Moscow to work with the "National Committee for Free Germany," the Communist-dominated anti-fascist popular front which was in many respects the successor organization to the German Section of the Comintern and the forerunner of the East German Satellite regime. In his chapter on the National Committee he describes the inner workings of this front, the ways in which the Communists dominated and controlled its propaganda, and to some extent the role of the old Comintern apparatus in the new circumstances (e.g. the Hungarian Ernő Geroe played an important role in the propaganda work of the National Committee). On April 30, 1945, Leonhard returned to Germany in a special Soviet plane as one of the 10 members of the "Ulbricht group," a handpicked group of leaders whose job it was, under the direction of Walter Ulbricht, to lay the groundwork for the Communist take-over in Germany. Leonhard describes the reorganization of the German Communist Party as it came up from underground in the wake of the Soviet Army, the organization of the local administration, and the beginnings of the Communist state in East Germany now known as the German Democratic Republic. To the student

of Communism in Germany, the chapters entitled "With Ulbricht to Berlin" and "An Official of the SED Central Secretariat" are an important personal source document.

Leonhard played a key role in the political indoctrination system of the East German Communist ("Socialist Unity") Party, and from 1947 until his break in 1949, at the age of 27, he was an instructor at the Central Party Academy of the SED. The last chapter of the story, "My Break with Stalinism," is psychologically revealing not only for Leonhard himself, but for all those Communists who have seen and experienced enough to be plagued by doubts and questions—what Leonhard calls "political bellyaches" and Woodhouse renders as "political collywobbles." This is an approach to disillusionment which compares favorably with Arthur Koestler's classics on the subject. For those with a professional interest in propaganda, the section in which Leonhard analyzes and criticizes Western propaganda efforts to reach and affect the Communist audience is very much worthwhile; unfortunately, Mr. Woodhouse has also seen fit to cut this down. The last part of the story, which could be quite interesting, Leonhard has played down: in fleeing from East Berlin, he chose the somewhat improbable route via Czechoslovakia to Yugoslavia, where he worked in Tito's propaganda apparatus for almost 2 years before going to West Germany, where he now lives. In this respect, Leonhard is an "unicus" among defectors.

In his prologue, Leonhard wrote, "It is . . . my deliberate intention to present every encounter and discussion, every event and experience, exactly as I saw it and reacted to it and felt it at the time. . . ." With all due respect for intentions, the Leonhard story also contains the results of 2 years of life in anti-Stalinist Yugoslavia and another 3 years or more in the West. It is not surprising that *post facto* rationalizations should creep in, but it is unfortunate that Leonhard should attempt to leave his readers with the impression that this is not the case. Nor is he in all cases completely honest with his readers—possibly not even with himself. An example of this can be found in a passage from his mother's story treating her return to Berlin in 1948 after 12 years of NKVD custody, and her reunion with her son; she writes, "He was now called Wolfgang. I used to call him Volodya [nickname for Vladimir, the name she gave him]." He dismisses this point in passing

(on page 100 of the English version): "Volodya (this was the name by which I was known in the Soviet Union). . . ." And his description of his reunion with his mother differs in tone from hers—it shows him in a more favorable light. These are little things, perhaps, but they are insights into the character of a man who was moulded by the Soviet system, rose too high too young, has become famous as one of the earliest (and most genuine) German "Titoists," and is still flattered and sought after as an "expert." Perhaps, with time, his personal and political arrogance will be mellowed.

The prospective reader should not shy away from the Leonhard story because of this critical evaluation of the man. It is an interesting story, it is informative, and it is professionally worth while.

YOU'RE STEPPING ON MY CLOAK AND DAGGER. By Roger Hall. (New York: W. W. Norton. 1957. Pp. 219. \$3.75.)

Roger Hall wrote this hilarious story during the latter part of his OSS assignment, when I knew him as a most entertaining, albeit somewhat cynical, fellow and the companion of many a pleasant off-duty hour. I was confident then that if he ever published the book it would be well worth the retail price plus federal amusement tax. It is. For those who were in the Office of Strategic Services, the racy account of Roger's two and a half wartime years of service will bring back many amusing recollections of their own; and for those who weren't it provides a colorful story of part of what happened in the OSS, at least to Roger.

He was "rotting away," he says, at Camp Plauche, Louisiana, where his principal activity was playing center field on the regimental softball team, and he feared transfer to an even less desirable post as a result of having "lost a ball in the sun, made a throwing error, and struck out three times in one game." In desperation he volunteered for "hazardous duty" with the OSS. Arriving in Washington, he found the OSS "located midway between a brewery and a Naval hospital which catered to mental cases." He reported to "Q" Building after having been thrown out of the brewery and refused admittance to the hospital, or "it may have been the other way around."

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After minor adventures with guards and questionnaires, the new wearer of the OSS cloak was sent via a devious route to a secret "Area F" for guerrilla warfare training. To the utter chagrin of his conducting officer, it developed that Roger, during his carefree civilian days, had intimately known the Area F terrain as the Congressional Country Club. He soon became an instructor and remained in this capacity for about three months. This assignment was followed by a stint at Area B in the chilly western Maryland mountains not far from President Roosevelt's famed "Shangri-La." There the President's trigger-happy Marine bodyguards amused themselves by firing over the heads of the OSS trainees, and "most of the taller men developed a posture problem."

At Fort Benning, Ga., Roger acquired his parachute wings, progressing with precarious bravado through climactic training stages. Returning to Washington, he was sent to Area S for the three-day psychological assessment, where he vanquished the head-shrinkers in mental and alcoholic combat and was approved for assignment to Special Operations.

At Area E, the "Spy School," his final test problem was to penetrate a war plant in Philadelphia without being arrested either as an enemy spy or as a U.S. amateur trainee. Through a series of fortuitive circumstances, and notably the vulnerability of the charming daughter of the plant's vice president, he was eminently successful. He not only succeeded in a complete penetration of the plant but was called on, in his cover capacity as a heroic discharged veteran from overseas, to speak at a war bond rally of the plant workers. Although his previous experience on stage was "one performance as the Dormouse in *Alice in Wonderland* as rendered by Miss Mowery's Kindergarten," he made a stirring speech. "There wasn't a dry eye in the house," and bond sales rose sharply, according to a glowing account in the morning paper.

After a few wild days in Washington, he was pronounced physically fit and dispatched overseas. In London he endured with impatience the OSS bureaucracy until eventually, with immense build-up of suspense, he was parachuted into France — behind the U. S. lines!

Bitterly he returned to England and got assignment to the Norso Group, training for a jump into Norway at the renowned

jump school in Scotland. After endless delays, they jumped after V-E day onto a Norwegian runway lined with thousands of Germans. Roger forcefully quelled the arrogance of the German commanders and accepted their surrender as befitting a conquering hero.

COMBAT, Histoire d'un Mouvement de Resistance de juillet 1940 a juillet 1953. By *Marie Granet* and *Henri Michel*. (Paris: Presses Universitaires de France. 1957. Pp. 328. 1000 fr.)

This book is the latest in the official series "*Esprit de la Resistance*" which seeks to portray in scholarly documented fashion the aims and purposes of the French Resistance both on the plane of individual sacrifice and on that of national significance.

The *Combat* movement was conceived in 1940 in Southern France in the mind of an escaped but not demobilized Captain Henri Frenay, who began to ask himself what he could do for his country so recently ground ignominiously under the Nazi heel. The book traces the growth of this idea and its development into a well-coordinated unit finally absorbed into *Mouvements Unis de Resistance* in 1943.

It is always difficult to write of a period of history which was not recorded at the time by the participants. In this case the authors have interviewed 138 persons connected with the *Combat* network during the occupation. The reader can assume that most of the facts presented in the book are accurate; there are no attempts to personalize or color the narrative. This does not prevent the book from being an absorbing, at times exciting, account of the problems of this period.

The most interesting sections are those which show the growth of *Combat* into an organized group with separate organs for propaganda and action. By 1942 it had become well enough known to draw the attention not only of the Germans but of the Gaullist leaders in London. The latter dispatched an agent to France to coordinate the various resistance groups and to ensure the carrying out of directives from London. Relations were not always smooth between London and the leaders of *Combat* whose authority had been earned directly

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on the scene. The book pays grudging tribute to the diplomacy and organizing ability of Jean Moulin, the coordinator sent from London who until his capture by the Germans was able to obtain to an extraordinary degree the adherence of totally disparate elements sometimes hostile to the London program. In the opinion of the writers the American authorities were generally misinformed during this period concerning conditions in occupied France; their early attempts to use unacceptable leaders are cited as evidence of this point.

The official entry of the Communists into the *Mouvements Unis de Resistance* is worthy of note. The French Communist Party had maintained a "defeatist" attitude at the beginning of the war, but from 1941 had regained lost respect through "the courage of the Communist militants in action against the enemy and the brutality of the repression of which they were the object." When the Resistance grew in 1943 from a spontaneous movement to an administered one, each participating group had to be represented on the newly created *Conseil National de la Resistance*, and the Communists thereby acquired legality and respect which they were to wield with great effectiveness for many years to come.

Frenay had realized that the emergence of individual political party influence was inevitable as the resistance organizations increased in strength and entered the *Mouvements Unis*. In the resistance councils in France, London, and Algiers there began to appear the political alignments which governed France at the time of the liberation and after. In many person's opinion the building of this bridge to the mistakes of the past was one of the greatest political errors of General de Gaulle. A consideration of the extent to which the spirit of sacrifice and goodwill engendered by the Resistance has been dissipated since the liberation lends considerable support to this belief.

WE SPIED . . .

There were a few books published in the last weeks of 1957 which should receive mention even at this date. Some of them are reviewed at greater length elsewhere in this issue—*Air Spy*, by Constance Babington-Smith, *Child of the Revolution*, by Wolfgang Leonhard, and a good book on the French resistance, *Combat*, by Marie Granet and Henri Michel. Michel, Secretary General of the official French *Comité D'Histoire de la 2^e Guerre Mondiale*, is probably the outstanding authority on the French resistance.

Resistance in Denmark

One of the best books written on World War II resistance movements is *The Savage Canary: The Story of Resistance in Denmark*, by David Lampe.¹ In writing this book Lampe talked with many of the leaders and participants in the Danish resistance. Although intended for popular consumption, the book contains much interesting tradecraft. It tells, for instance, how the radio equipment parachuted into Denmark by the British SOE in late 1942 and early 1943 was too large to be transported without suspicion, had to be operated on alternating current in a country where almost all power was direct current, and used transmitter tubes of a kind that could not be replaced in Denmark. The Danes finally persuaded SOE to let them train their own operators in Denmark and build their own transmitters with British frequency crystals parachuted in. The Danish success in this field makes an interesting chapter.

Other tradecraft dealt with in *The Savage Canary* includes documentation, air/maritime support, and sabotage. The escapes of resistance leaders and the resistance of student groups and the medical profession are also described, and some discussion is devoted to the subject of intelligence collection by the resistance.

One of the best sections deals with the bombing of Shell House, the headquarters of the Gestapo. This pinpoint bombing raid of a building in the middle of Copenhagen, led by Air

¹ London: Cassel & Co. Ltd., 1957. 236 pp. 18/—.

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Vice-Marshall Embry, required the greatest care: it was necessary to bomb Shell House at its base, as the attic housed 25 captured members of the Danish resistance. After careful deliberation it was decided that Shell House must in any event be destroyed because it contained the Gestapo records, including dossiers on members of the resistance and other key Danes. The bombing took scarcely four minutes. The Danes in the attic escaped and the Gestapo records were wiped out. Another good chapter deals with the resistance-aided escape of the atomic scientist, Dr. Nils Bohr, from Denmark. No escape could be more fateful to mankind than this one. This book is well worth reading.

US Communists and the FBI

The press has carried many favorable reviews of J. Edgar Hoover's *Masters of Deceit*.² The Director of the Federal Bureau of Investigation wrote this book largely for popular consumption, and it is indeed climbing to the top of the best-seller lists. As Mr. Hoover says in his Foreword, the book

attempts, in almost primer form, to set down certain fundamentals of the day-to-day operations of the Communist Party, USA: how a communist meeting is conducted; how a top Party official lives; what goes on in the underground; how discipline is enforced; how Party members collect money, attend indoctrination schools, hand out propaganda leaflets. Party members are shown organizing agitation campaigns, infiltrating noncommunist organizations, and manipulating communist fronts.

For young officers who are coming to grips with the communist apparatus for the first time from a professional angle, no better primer could be supplied. For those who are inclined to dismiss CPUSA as insignificant because it may be small in numbers, *Masters of Deceit* supplies many insights into the effectiveness of a dedicated few and into what lurks just below the surface of a legal organization.

Of particular interest in *Masters of Deceit* are Parts V and VI on "The Communist Trojan Horse in Action" and "The Communist Underground." The latter describes how the under-

² J. Edgar Hoover, *Masters of Deceit: The Story of Communism in America and How to Fight It*. New York: Henry Holt and Company, 1958. 374 pp. \$5.00.

ground works, how it carries out espionage and sabotage. Part V deals with communist strategy and tactics, mass agitation, infiltration, fronts, and the attack and exploitation of minorities. In a book of this kind the Director of the FBI cannot unlock its secret files, but he has succeeded in citing enough examples to give the work a very realistic touch.

Bughouse and Bedside

While intelligence is a serious business, some classics have been written in this field with a heavy accent on humor or the spoof: you recall Compton Mackenzie's *Water On the Brain* and Beverley Bowie's *Operation Bughouse*. To these can now be added *You're Stepping On My Cloak and Dagger*, by Roger Hall, a hilarious book about Hall's activities in the OSS which is reviewed elsewhere in this issue. In somewhat the same category is *The Spy's Bedside Book*,³ edited by Graham Greene and his brother, Hugh. Obviously this is a volume which no professional can afford to leave off his bedside table. Perhaps its most amusing feature is the back of its jacket, with its advertisements for hair stain, false eyebrows and eyelashes, and a lotion to train, fix and beautify the moustache. And on a perforated page in the back is a form letter to the publisher which reads in part:

I should like to take advantage of your offer to supply to any authorized agent of a foreign government copies of *The Spy's Bedside Book* at the ordinary trade discount. I guarantee that these copies . . . will be used only for the proper purposes of our Secret Services.

The book itself consists of extracts, varying from sentence-length to the better part of a chapter, from some of the classics of intelligence literature, both factual and fiction. These extracts are divided into various categories, such as "Hazards of the Profession," "Unexpected Encounters," "Professional Perquisites," and "Tricks of the Trade." Here we meet such old friends as Cicero, Major Andre, Baden-Powell, Mata Hari, Dreyfuss, Petrov, and Schellenberg. Some sections of the book are funny and some are serious; much of it is ironical. The publisher's blurb on the jacket points out that "The foxhunter, the angler, the cricketer, the lover—each has had his own bed-

³ London: Rupert Hart-Davis, 1957. 256 pp. 15/-.

side book. Why not the spy?" Why not, indeed? Because your reviewer has no satisfactory answer, he calls this one to your attention.

As a matter of reference, one should take note of *The Fateful Years: Memoirs 1931-1945*, by Hugh Dalton,⁴ Chancellor of the Exchequer in Great Britain's post-war Labor government. In 1940, with the advent of the Churchill government, Dalton had become the Minister of Economic Warfare, a post he held until February 1942, and two of his chapters deal with this tour of duty. The present reviewer must confess to finding them disappointing. Mr. Dalton does not write with any modesty about his role nor in very great detail about what went on. He relies heavily in his footnotes on *The Economic Blockade*, by W. N. Medlicott, one of the official British series, "History of the Second World War." In July 1940 Dalton also took charge of the Special Operations Executive (SOE), then in its infancy, but the chapter which he devotes to this subject is, perhaps necessarily, rather sketchy. It is principally Dalton's position which makes his book noteworthy.

Brief Mention

Attention is called also to the following recently acquired books on various aspects of intelligence:

BURSTEN, Martin A. *Escape from Fear*. Syracuse, New York: Syracuse University Press, 1958. 224 Pp. \$3.50.

Accounts by participants and eye-witnesses of the Hungarian Revolt of 1956, how they escaped, and how they were received in the United States and other nations of the free world. The author is a journalist and Public Relations Director of United Hias Service, an immigrant aid society, and was assisting on the Austrian border and in Vienna during the revolt.

COLLIER, Richard. *Ten Thousand Eyes*. London: Collins, 1958. 320 Pp. 18/-.

The activities of the French Resistance in stealing the secrets of the Nazi defenses in France, particularly in the area between Cherbourg and Le Havre.

⁴ London: Frederick Muller, 1957. 493 pp. 30/-.

We Spied

CONNELL, John. *The "Office": A Study of British Foreign Policy and Its Makers, 1919-1951*. London: Allan Wingate, 1958. 367 Pp. 25/-.

The last chapter of this book is devoted to the case of Burgess and McLean, the two British foreign service officers who defected to the USSR. The author is book critic of the *London Evening News*.

FONROY, J. H. *La Bataille Des Services Secrets*. Paris: Editions Du Milieu Du Monde, 1958. 284 Pp.

This book, which appears to have been written for popular consumption, includes historical material on various aspects of espionage. Also included are chapters on espionage under Napoleon, the case of Colonel Redl, Mata Hari, and Cicero.

KINTNER, William R., in association with Joseph I. Coffey and Raymond J. Albright. *Forging A New Sword: A study of the Department of Defense*. New York: Harper & Brothers, 1958. 238 Pp. \$4.50.

Kintner and Coffey are both Colonels in the United States Army. Albright is a foreign affairs officer in the Office of the Secretary of Defense. This is a controversial book which outlines many critical problems in the organization and activities of the Department of Defense, including waste and duplication of effort, inter-service rivalry, lack of coordination, and concern with fiscal matters. It also contains material on the role of the National Security Council, its Planning Board and Operations Coordinating Board, and the Central Intelligence Agency.

KLEIN, Alexander. *The Counterfeit Traitor*. New York: Holt, 1958. 301 Pp. \$3.95. and London: Frederick Muller Ltd., 1958. 18/-.

This book describes the espionage activities of Eric Erickson, an American who became a Swedish citizen. An oilman, he assumed a pro-Nazi pose which allowed him to travel in wartime Germany. As a result he secured valuable information for the Americans for use in bombing the German oil refineries.

We Spied

WILKINSON, Laurence. *No Fruit More Bitter*. London: Heinemann, 1958. 252 Pp. 25/-.

The author is a newspaperman, presently with the London *Sunday Express*. This book is the story of the seizure of the Rumanian Legation in Berne by four anti-Communist Rumanians. Wilkinson talked with the raiders, attended their trial in Berne, and also talked with many others in preparing this book.

For those who like the small, pocket-size paperbacks, attention is called to two good ones.

HOWARTH, David. *Escape Alone*. London: Collins (Fontana books), 1958. 190 Pp. 2/6.

This book was originally published in 1955 in New York and London under the title *We Die Alone*. The author was second in command of the base in the Shetland Islands from which Norwegians sailed to the mainland of Norway in support of the resistance, espionage, and sabotage operations. This book tells the story of Jan Baalsrud, the sole survivor of one such sabotage mission ambushed by the Germans. Baalsrud evaded capture for two months in the Arctic and finally made his way to Sweden. It is an epic story of evasion and survival.

MINNEY, Rubeigh James. *Carve Her Name With Pride*. London: Pan Books Ltd., 1958. 191 Pp. 2/6.

Originally published in London in 1956, this book tells the story of Violette Szabo, with emphasis upon her activities with the French Resistance during World War II. After the D-Day landings, she was captured, tortured, and sent to Ravensbruck Prison Camp, where she was shot by the Nazis in the closing days of the war.

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